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ORIGINAL ARTICLES.

IRREGULAR APOPLECTIC ATTACKS, DUE TO OTHER CAUSES THAN HÆMORRHAGE AND EMBOLISM.

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Presented in the Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

The term "*apoplectic attack*" is employed in the title of this paper to denote the sudden onset of a train of symptoms in which unconsciousness, hemiplegia and convulsions are more or less prominent. Many writers have used the word apoplexy to express a certain form of hæmorrhage, as in the terms *renal apoplexy* and *pulmonary apoplexy;* in this paper it will not be used in that sense, but will always be taken to mean the symptoms described, without reference to their causation.

The investigations of modern pathologists have clearly established the relation of apoplexy to the various forms of cerebral hæmorrhage, embolism and thrombosis, and have enabled us to distinguish between those conditions with considerable accuracy. We now understand that unconsciousness is usually most profound in cerebral hæmorrhage; that consciousness may be preserved in embolism, even where hemiplegia is well-marked; and that in meningeal hæmorrhages unconsciousness and convulsions may occur, and yet hemiplegia be ill-defined. These differences, and many other important facts, have been abundantly verified by *post-mortem* examinations, and the diagnosis of organic brain disease has in the last few years been put upon a very satisfactory basis. When, however, we come to study the symptoms which are produced where the circulation of the brain has been disturbed by functional causes, instead of by organic lesions, we are at once met by difficulties. Hæmorrhage, thrombosis or embolism is easily determined by *post-mortem* examination, but it is often impossible at an autopsy to decide whether the brain was anæmic or hyperæmic just before death. Moreover, cases of functional disturbance of the cerebral circulation, even when sufficiently severe to cause the most alarming symptoms, rarely terminate fatally. *Post-mortem* examinations, then, which have done so much to clear up everything connected with organic brain disease, can assist us very little in studying those affections which depend merely upon functional irregularities in the cerebral blood supply. Whatever information we have on this subject is mainly the result of experiments and of clinical observations, and may be summarized as follows: 1st. Sudden *anæmia* of the brain causes unconsciousness and convulsions. This anæmia may be produced by failure of the heart's action, by pressure upon the carotids, or by the action of the vaso-motor nerves. The vaso-motor nerves may act in two ways to cause anæmia of the brain: first, *directly*, by causing contraction of the cerebral arteries; second, *indirectly*, by causing dilatation of the abdominal blood-vessels, thus lowering the general blood-pressure and draining the blood from the brain into the vessels of the trunk. 2d. *Venous hyperæmia* of the brain, through the privation of oxygen which it involves, has the same effects as anæmia. 3d. *Arterial hyperæmia* of the brain is more difficult to produce artificially than the preceding conditions, and has been less carefully studied; modern pathologists are inclined to look upon it as a rare and comparatively unimportant event. This is in marked contrast with the views of our ancestors, with whom *active cerebral congestion* and *congestive apoplexy* were much talked of; modern observation, however, has proved that convulsions, dizziness and similar symptoms, which were formerly attributed to a rush of blood to the head, are in reality much more frequently dependent upon cerebral anæmia. This short summary of what physiologists and clinical observers have been able to teach us about the effects produced by variations in the cerebral blood supply is sufficient to show us in how many ways apparently remote influences can cause anæmia or hyperæmia of the brain, and how difficult it is to formulate the symptoms which may follow. The best understood of all the diseases depending upon disturbance of the brain circulation, and the one which has been most thoroughly studied, is epilepsy. A typical epileptic seizure is ushered in by contraction of the cerebral arterioles, the face becoming pale and the pupils dilating; unconsciousness follows, the patient falling to the ground in convulsions which are at first tonic, and then clonic. The convulsions last one or two minutes, and are succeeded by a condition of lethargy or semi-coma, which usually terminates in from ten to forty minutes; the patient then returns to his normal condition until the occurrence of the next paroxysm. Such a picture is not hard to recognize, and a diagnosis is usu-

ally easy. But suppose, from the same causes, we have an attack in which the ushering-in convulsions are so indistinct as to escape notice—nothing but a rolling up of the eyes or a few twitches. Suppose the unconsciousness lasts for hours, and is so profound as to merit the name of true coma—the patient cannot be roused, his pupils are dilated and do not respond to light, his breathing is stertorous and his face is cyanosed. If to these symptoms we add the transient hemiplegia which is occasionally seen with epilepsy, the condition will imitate apoplexy from organic lesion almost too closely to admit of detection. Attacks of vertigo from stomach disorder are very common, and are not often mistaken for anything else; but occasionally cases are met with in which the same conditions are in some way aggravated, and instead of vertigo, we find profound stertorous coma. Such cases, at first sight, and even after careful examination, often present all the symptoms which usually indicate grave organic lesions, and a correct diagnosis is rarely made until the sudden recovery of the patient points the way to it. And so in many ways, and under a variety of circumstances, apoplectic attacks may occur, so severe as to seemingly warrant the gravest prognosis, and yet terminating in recovery so suddenly as to make the existence of any organic lesion extremely improbable. It is well established that the symptoms which attend cerebral hæmorrhage, embolism and thrombosis, are mainly due to the disturbances of the intracranial circulation which they produce—in the case of hæmorrhage, by pressure of the clot on the surrounding tissue; in the case of embolism and thrombosis, by occlusion of the vessels of supply. Since disturbance of circulation is the essential factor in the process, it is not strange that similar symptoms should be produced, whether the blood current be obstructed by an embolus or by contraction of vessels—whether anæmia be caused by the pressure of a clot or by failure of the heart. A marked difference between the two conditions presents itself, however, when the persistence of organic lesions is compared with the rapid disappearance of functional irregularities. This subject may be most appropriately discussed in connection with the following illustrative cases, all of which were seen by other physicians, either accidentally at the time of the attack, or in consultation with the author. In all of these cases, an erroneous diagnosis was made at first by the author, or by a physician who was called in before him.

CASE NO. I.—*Apoplectic attack from cerebral anæmia following exhaustion and overwork.*

T. B., a young gentleman 24 years of age, finely developed, and who had always enjoyed excellent health, became exhausted from overwork during the hot weather in August, and passed some sleepless nights worrying about business. Returning home one evening much fatigued, he suddenly fell back unconscious. A servant, who is more than usually intelligent, was in the room at the time and observed no convulsive movements. All efforts to rouse the patient being of no avail, the author was sent for, and found the patient profoundly comatose, making no sign when pinched or when ammonia was held to his nose. The breathing was stertorous, and the face cyanozed. The pupils were dilated, but not unequal. There was no evidence of any paralysis. The urine, drawn with a catheter, was in all respects normal. After the coma had lasted two hours, the patient recovered consciousness gradually and without nausea. His mental condition from this time on until his recovery—a period of five days—was very peculiar. It resembled very closely the delirium of fever. He would hold conversations with imaginary people, mistook his attendants for his sister or mother, and raved about his affairs, believing himself to be at his office. During all this time his temperature and pulse were invariably normal. He could walk feebly with assistance and gave no evidence of paralysis or any tendency to rotatory movements. Sensation was normal. The tongue when protruded did not deviate, and there was no aphasia. Examination of the retina and ear revealed nothing abnormal. The heart and lungs seemed healthy. The case was seen in consultation by Dr. George L. Peabody, and was very thoroughly examined. On the morning of the sixth the patient awoke with his mind perfectly clear; he presented no further symptoms and at once regained his health. He has remained well during the two years which have elapsed since that time. The author's first diagnosis was a probable slight hæmorrhage into one of the posterior lobes, basing this opinion upon the presence of coma followed by obscured intelligence, without any effect on motion or sensation. He now believes that the apoplectic attack was due to sudden anæmia of the brain, and that the subsequent mental impairment was due to the same cause in a less degree, and analogous to the delirium of inanition or starvation.

CASE NO. II.—*Apoplectic Attack Apparently Due to Retrocedent Gout.*—Mrs. S., a lady 60 years of age, and for fifteen years a sufferer from gout in the toes and fingers. She usually has four or five attacks in a year, and is always able to predict their coming by the appearance of prodromal dyspeptic symptoms, and marked diminution in the quantity of urine. In November last, while experiencing the usual prodromata and expecting an attack of gout at any moment, she suddenly became unconscious, falling to the floor. The nearest doctor was sent for at once, and on hearing the history and finding a gouty old lady comatose and hemiplegic, without hesitation gave an unqualified diagnosis of cerebral hæmorrhage, with a corresponding prognosis. The author saw the patient some hours afterward, when she had regained consciousness. She was still hemiplegic, the face, however, remaining unaffected. There was no anæsthesia. The tongue did not deviate, and there was no aphasia.

The lungs, heart and kidneys seemed normal. At the end of twenty-four hours her symptoms had all disappeared, and she experienced that relief from dyspepsia and scanty urine which was usual after gouty paroxysms affecting the joints. Since then she has had one attack of gout in her toe, but in all

other respects has been well. This case is analogous to those described by Garrod, in which coma or hemiplegia occurs after prodromal gouty symptoms, and seems to take the place of the joint manifestations. Gouty deposits of urate of soda have never been found in the brain or its membranes, hence these attacks do not seem to be, strictly speaking, a transfer of the morbid process from the joints to the brain. They probably depend upon some disturbance of the intra-cranial circulation, which is sufficient to cause symptoms, and yet does not involve the production of tophaceous deposits.

CASE NO. III.—*Apoplectic Attack from Stomach Disorder.*—Mr. W., a gentleman 56 years of age, habitually enjoys good health, but is apt to occasionally overwork himself. He returned home one afternoon very much fatigued, and went to his room to dress. The servant who came to announce that dinner was served received no answer, and on looking into his room saw him in an arm-chair, apparently asleep. On advancing to wake him she noticed that he was breathing heavily, and presently saw that his clothes were covered with matters which he had vomited. Two doctors were called at once, who found him profoundly comatose, with stertor and cyanosis; they made a diagnosis of cerebral hæmorrhage, with a grave prognosis based upon the very deep coma. After another hour the patient began to regain consciousness, and although he remained for awhile somewhat dazed, yet at the end of four or five hours from the time of his first seizure he was fairly himself again, and spent a good night. The next morning he arose and dressed himself as usual, and has been well ever since; it is now three years since the attack. In this case we have sudden unconsciousness, along with the vomiting of a large quantity of undigested food, which had been eaten at least five hours before, and should have been absorbed by that time if the stomach had been normally active. Profound coma was present for two hours, followed by three hours of mental confusion. At no time was there any appearance of paralysis; and as no one saw the commencement of the attack, it is impossible to say if any convulsions occurred at that time. Examination of the heart, lungs, and kidneys, gave only negative results. This seems to be an instance where stomach disorder produced symptoms of which vertigo is simply a lighter shade, differing only in degree. No hæmorrhage ever produced more profound coma than was present here for two hours, and yet the patient was well the next day and able to attend to business.

CASE NO. IV.—*Apoplectic Attack—Cause unknown.*—Mr. E., a merchant, 28 years of age, enjoys good health and is an active business man. One evening he was taking supper at a restaurant, having been to the theater. As he rose to put on his overcoat, he suddenly fell to the floor unconscious, no convulsive movements being observed by the friends who were with him. A physician was called at once, and finding him still comatose with his right side paralyzed, pronounced the case to be one of cerebral hæmorrhage or embolism. The author saw the patient two hours after the first attack; he had by this time partially regained consciousness, but was still hemiplegic, the face, however, being unaffected. Sensation was normal, or nearly so. There had been no vomiting. The tongue did not deviate when protruded, and there was no aphasia. Physical examination disclosed no disease of the heart, lungs or kidneys. The patient passed a quiet night, and when he awoke all the symptoms had disappeared. This occurred several months ago, and he has been perfectly well ever since. In this case we have sudden unconsciousness with hemiplegia, and the resemblance to cerebral hæmorrhage or embolism is at first altogether deceptive. We have here a fair type of what used to be called congestive apoplexy. Trousseau describes a number of such cases and believes them to be essentially epileptic. They differ from ordinary epilepsy in the slightness of the ushering-in convulsion, which is apt to escape the notice of friends and bystanders, and in being followed by deeper and more prolonged unconsciousness. When there is added the transient hemiplegia which occasionally occurs with epilepsy, it is almost impossible, as in the case just described, to distinguish the attack from one of cerebral hæmorrhage. The author saw a case two years ago which, during the first few hours, was the exact counterpart of the one just described. The age, the circumstances, the mode of onset, and the subsequent symptoms were identical even to the smallest detail. The author is confident that with those two patients before him to-day, side by side, he would be unable for four or five hours to determine in which an organic lesion was present. And yet one case recovered completely in twenty-four hours, and the other, though still living, is paralyzed to this day.

In conclusion, it may be stated that a positive diagnosis of organic lesion cannot with safety be made very early in any apoplectic attack, since the symptoms presented do not differ in kind or in degree from those which *may* be produced as a result of functional disturbance. The persistence of the symptoms seems to be the only reliable criterion. An exception to this statement may be made in favor of inequality of the pupils, which has never, to the author's knowledge, been observed with functional apoplectic attacks. The presence of this sign, associated with apoplectic symptoms and not dependent upon local eye trouble, may be taken as positive proof of the existence of organic lesion.

Dr. Janeway reported two cases of apoplectic attacks produced by excessive smoking. In these cases the attacks were not repeated after the patient gave up the habit of smoking.

Dr. A. Flint, Jr., referred to some of his experiments on animals, which went to show that cutting of the circulation of the brain was liable to produce convulsions. This he attributed to the anæmia of the brain rather than to the interference with the respiratory centres. He thought that the profession was coming to pay more attention to the effects of variations of the intra-cranial circulation than it had previously done.

THE NEW OFFICINAL CHLORATE.

BY TRAILL GREEN, M.D., EASTON, PA.

Read in the Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

The introduction of the chlorates of the stronger alkaline metals makes an important era in therapeutics. The potassium salt was first used in medicine toward the close of the last century, but was not well known by the profession before the middle of the present century. Its properties and uses were well considered by our Chairman before this Section in 1882, and a paper was read by him on its uses in scrofula in 1880. All the journals have contained articles on this salt, and have given us various formulæ for its administration. It is safe to say that its properties and uses are now well understood. Every member of our profession can testify to its useful properties as a therapeutic agent, and all the younger practitioners must wonder how without this remedy we treated the various diseases in which we find it now to be so effectual, such as diseases of the mouth and throat.

The potassium salt was made officinal when the Pharmacopœia was revised in 1850, and the sodium salt in the revision of 1880. This addition to the Pharmacopœia of 1880 I shall show was a very important one.

Sodium chlorate was first described by M. Chenevix, (Thompson's Chemistry of Inorganic Bodies, vol. II., p. 449). Having discovered its great solubility, I was led to the use of it in 1866, and I soon observed its excellent properties in the diseases in which the potassium salt had been used. In 1870, I called attention to it before the Medical Society of Pennsylvania. (Transactions of the Medical Society of Pennsylvania, 1870, p. 141). Since that time I think many practitioners have used the sodium salt, who had previously used the potassium chlorate, and they testify to its greater efficacy. I see cases constantly which prove its superiority. It is very well known that the potash salt is freely prescribed in almost every family *without the advice* of the family physician. I am called very frequently to prescribe for cases so treated which have remained ill for some time under suitable doses of the potash salt.

Under the use of the sodium chlorate I find such attacks yielding very soon. I observe the same result very often in office patients who have in like manner used the potassium chlorate. The superiority of the sodium salt is now so well understood in the families in which I prescribe, that they are in the habit of sending to me for it rather than to trust to that which they had been accustomed to use.

Having observed the good effects of the sodium chlorate in various inflammations of the mucous surfaces I was led to use it in cases of inflammation of the skin produced by rhus toxicodendron, and I found it very effectual, its early use arresting the inflammation very speedily, and when the inflammation had advanced before I was called to treat it I found that it allayed the itching and burning, and hastened the healing of the inflamed parts. In cases of this kind I have used four to twelve grams of the salt to 500 cubic centimetres of water (one to three drachms to a pint of water.) For about 18 years I have not used any other remedy for this annoying disease, and I see a great many cases of it, and I may say that I have received the testimony of physicians residing in different parts of the country to its pleasant effects in cases of this kind.

In the same article in the Pennsylvania Society's Transactions for 1870, I called the attention of the members to its usefulness in inflammations of the mouth and throat.

For the same period I have used this salt with great comfort to the patient, and with good therapeutic results in erysipelas, a solution of eight to twelve grams to a litre of cold water. I keep cloths wet with it constantly applied to the inflamed surface. I have not found any remedy so soothing in the itching and burning sensation so common in scarlatina—sponging the surface with a solution of the strength just named.

It is well to remember that in using the chlorates externally, we must be careful to keep cloths from the fire, which have been saturated with them, and have become dry, as such cloths are easily ignited, and burn with great activity. I have known cases of severe burns to occur in this way.

In conjunctivitis and inflammations of the eyelids, a solution of four grams to 500 c.c. of water I have used with great success. I have found it useful in all the inflammations which occur in the skin and in the mucous surfaces terminating in the skin, inflamed piles, inflammations of the external ear, the mouth and nostrils. I have not found any remedy so effectual in nasal catarrh, using a warm solution, four grams to 500 c.c. of water.

It is scarcely necessary to occupy the time of the section with extended remarks on all the different diseases in which I have found this salt beneficial. I may say that there are no cases in which the potassium salt has been found useful that will not be more rapidly cured by the sodium salt.

Its greater solubility than that of the potassium salt of itself commends this remedy; it being soluble in 1.1 parts of water, while the other salt requires 16.5 both at 15° C or 59° F. The advantage of this will be seen when in the case of children it is desirable to have the quantity of the solvent small, or when used as a lotion that we may have it of sufficient strength without having to use too much to accomplish the desired object. I think we fail in diseases of the mouth to effect cures with the other salt, because the strongest solution is not of sufficient strength to produce a local effect. This will relieve us also from all apprehension of crystals of the salt being formed in the kidneys. I know that some physicians have fear that this may occur when the other chlorate is used. I remember that on one occasion when speaking of its properties before a medical society, the question was asked by an intelligent physician in large practice, whether any injury was done to the kidneys from the use of this salt; from

which it appears some physicians do apprehend unpleasant effects from the potassium chlorate. I believe this fear is without foundation, but those who have it may be assured that no such trouble can result from the use of a salt so soluble as the sodium chlorate. After using it freely for many years, I can say that I have never observed any symptoms that indicated trouble in the kidneys from it.

Further, I believe it is well understood that sodium salts are more pleasantly received by the system than are those of potassium. I am well persuaded of this by all my reading on this subject from the time of my entrance upon professional life. Besides, the compounds of this metal, as shown by Verdeil,[1] exist in the blood in the proportion of 64.12 to 12.70 of potassium compounds, from which it might be supposed the compound most abundant in the blood would be received by the system with greater toleration. There is abundant evidence that this is true of the external application of the two substances in the form of their compounds. Of this we have had recent experience in the good effects of bi-carbonate of sodium in the treatment of burns. The corresponding salt of potash would hardly be prescribed as a suitable remedy in the treatment of a recent burn. I see from time to time that the profession is learning that sodium iodide and sodium bromide are better tolerated by the system than are the corresponding salts of potassium. The heart and the stomach are less disturbed by the compounds of one of these metals than by those of the other. I say the profession is coming to the belief that several of the potash salts are not so kindly received by the system as are the corresponding salts of soda. While preparing this paper during the last month I met with an interesting article by Dr. H. W. Berg, in the *Archives of Medicine* for the same month, on the substitution of iodide of sodium for potassium iodide, which is applicable to the subject of this paper. The potassium salts weaken the action of the heart. Bogolepoff, as quoted by Dr. Berg, has shown that sodium iodide produces no such effect on the action of the heart, and Boehm that the same is true as to the cardiac muscles or ganglia-muscular tissue cut from a living animal and placed in a solution of potassium chloride of the strength of two or three per cent. the muscular fibres immediately lose their irritability. If the muscle has not been immersed in the potassium chloride too long, immersion in a sodium chloride solution will restore the irritability of the muscular fibres. Kühne has shown that when healthy muscular tissue is placed in a solution of sodium chloride its irritability will be preserved for a much longer period than it is in a solution of pure water. Kühne has also shown that while potassium chloride has a paralyzing effect upon muscular and nerve tissue with which it comes in contact, sodium chloride restores and preserves the irritability of muscular and nerve tissue to which it is applied.

I refer also to Prof. H. C. Wood's Treatise on Therapeutics, 5th edit., p. 499. The most marked action of the potash salts is upon the heart. When a frog is killed by a salt of potash, the heart is arrested in diastole, according to both Podocaepow and Guttman. The blood-current before death is greatly lessened in force, as was determined by Podocaepow by watching the circulation in the web, and by comparative experiment in regard to the rate at which blood flowed from wounded vessels in poisoned and unpoisoned frogs. In mammals, potash influences the heart even more markedly than in cold-blooded animals. Ten or fifteen grains of the chloride, quickly injected into the jugular vein, suffice to produce instant cardiac death. The action of a poisonous dose of potash upon the heart appears to be a local one.

By an elaborate series of experiments, Drs. Ringer and Murrell have shown that the potash salts in sufficient concentration act powerfully upon the cerebrum, the motor and sensuous nerves, and the muscles; in a word, that they are poisonous to all the higher forms of tissue.

Although the effects of large doses of compounds of potassium on the heart appear to be made out, definite knowledge is still wanting in regard to small doses. Traube asserts as the result of his experiments, that, injected into the blood in doses of two or three grains, the nitrate of potassium produces a fall in the pulse and a rise in the arterial pressure. Aubert and Dehn have experimented with a number of the salts of potash, and found, that with the exception of the permanganate, they all act upon the circulation in the manner just described.

Ringer and Murrell, applying the chlorides, iodides, and bromides of potassium and ammonium directly to the ends of the different nerves, found that they paralyzed, the effect of the potash salt being much the most harmful and permanent, that of ammonium the next, and that of sodium the least. When a potassium salt is given in large doses for a long time, it produces a condition of dyscrasia, with impoverishment and excessive fluidity of the blood.

Dr. Wood, ibid., p. 509, says of the chlorate of potash: "Upon mucous membrane and ulcerated surfaces this salt acts as a powerful irritant, being, I think, even more active in this respect than the nitrate of potassium. Owing probably to its irritant influence, when taken internally in sufficient quantity it acts as a poison, although Dr. Tully is said by Stillé to have taken an ounce without injury. It is possible that, as with the nitrate of potassium, free dilution may affect the toxic properties. However this may be, it is certain that the chlorate of potassium has in a number of instances caused death. In Dr. Fountain's case an ounce of it produced almost immediately copious diuresis, followed after a time by persistent suppression of urine and marked symptoms of gastro-intestinal inflammation, with death on the seventh day. It is probable that in diphtheria deaths attributed to the disease have often really been produced by the chlorate. The minimum fatal dose is unknown, but a drachm given in the course of a night has killed an infant under a year old, and 3 drachms given during a day a child 3 or 4 years old." (New York *Medical Record*, 1878. Consult also New York *Medical Record*, 1879, I, 243; II, 454.)

[1] Ann. der Chem. und Pharm. Band lxix, p. 89. Quoted by Dr. Carpenter. Principles of Human Physiology. Chap. IV.

Of sodium Dr. Wood writes, p. 610: "Unlike potassium, sodium and its salts have very little influence upon the higher animals."

Upon the blood the immediate influence of the soda salts is very slight, for Podocæpow asserts that one part dissolved in twelve parts of blood does not affect either the physical characters of the red corpuscles or the intensity of the ozone reaction.

Both Podocæpow and Guttman assert that even the largest doses do not sensibly affect the heart or the temperature; and the latter observer further declares that they are without influence upon the nerve-centers, the peripheral nerves, or the muscles.

The fact that soda in moderate amount has no depressing action, and indeed very little, if any, influence upon the general system, renders it preferable to potash in cases of acidity of the primæ viæ. It is, *par excellence*, the alkali for dyspepsia.

The knowledge of the physiological action of the compounds of sodium, prepares us to answer the question proposed sometimes by the families in which we prescribe concerning the preparations of sodium used in the culinary department. We certainly need not hesitate to say that, so used, we need not fear that the health of our clients will be affected. We learn from the study of the physiological action of potassium compounds, that the unprofessional use of chlorate of potassium, so common now among our people, must lead to the injury of the health. It is quite too common to find active remedies in the hands of those who know nothing of their properties, and still less of the nature of the diseases for which they use them. It will be well to exhort our friends to do themselves no harm by the use of those things of which they have no knowledge.

As therapeutists we certainly are so far ready to accept what is stated as to the effects of the potassium salts that we would not think it safe to use them in debilitated conditions of the system, and we assuredly can understand that their physiological action is such that their effect upon the muscular coats of the stomach, and the muscles of the heart, from long continued use must make such use unsafe in persons of more vigorous health.

From all that I have learned of the properties of the salt to which I have called the attention of the section, I feel assured that any one who will use it for a short time, will be so much gratified with its properties and action that he will never omit its use for that of the potassium salt.

ON SURGICAL TREATMENT OF GANGRENE OF THE LUNG.

BY DR. CH. FENGER, OF CHICAGO.

(Read before the Illinois State Medical Society in May, 1884.)

Since Mosler's drainage of a tuberculous cavity, pulmonary surgery has received considerable attention. Clinical observations have been made by Mosler, Pepper, Koch, Bull, Hollister, and myself, and the subject has been studied in an experimental way by Gluck, Schmidt, and Bloch. In 1882, Bull, of Christiania, was able to tabulate 19 cases where operations had been performed for various kinds of pulmonary cavities. I shall limit my remarks here to cases of acute pulmonary gangrene. So little is known in this branch of surgery that it is safe only to draw conclusions from similar or identical cases. Acute gangrene of the lung, as is well known, is either diffuse or circumscribed. Diffuse pulmonary gangrene has never as yet and probably never will be interfered with surgically. Aside from its being, in all probability, an inevitably fatal disease, the course it runs is so acute, it is accompanied by such symptoms of depression and asthenic fever, that the condition the patient is found in will almost always exclude the thought of an operation. Circumscribed pulmonary gangrene, on the other hand, runs a more chronic course, its symptoms are less grave, and the patient, often for many weeks, retains sufficient strength to bear the strain and shock of an operation. In this respect surgical interference is justifiable. It has, indeed, been thought of and resorted to four times within the last five years by men in different countries, and more or less independent of each other, not having any accurate knowledge of each other's doings in this particular department of our science.

Let us briefly call to mind what is known about circumscribed pulmonary gangrene. It may be caused by an embolus, a bronchitis or a pneumonia; but no matter what its cause is, it presents itself in the beginning as a necrotic portion of lung tissue, varying in size from that of a bean to that of a hen's egg. This necrotic piece of tissue is sharply defined; after a while it is isolated from the living pulmonary tissue by a demarcating inflammation. It then lies in a cavity as a foreign body. It may be found there, according to Rokitansky, as a blackish-green, shaggy and moist plug bathed in ichorous fluid and of considerably smaller size than the cavity. It, however, happens still more frequently that the necrotic piece does not keep together in one mass, but is dissolved into a grayish-brown, very fetid ichorous pulp which is mixed with rotten, shaggy fragments of tissue; the walls of the surrounding cavity are lined by the same shaggy tissue infiltrated with ichor. The surrounding pulmonary substance is sometimes normal; more frequently it is in a state of inflammation, which has a stage of, or terminates in, hepatization. This hepatization may extend through the whole lobe affected with the gangrene. In cases in which the gangrenous cavity communicates with a bronchus, the bronchus affords a channel for the evacuation of shreds of necrotic lung tissue. The suppuration going on in the walls of the cavity may eliminate all the adherent shreds of dead pulmonary tissue, an abscess may form which, after evacuation of its contents, may close up, the (abscess) cavity may contract, and, finally, nothing is left but a scar to indicate the spot where there once existed a circumscribed pulmonary gangrene. Such spontaneous recoveries may take place, but how often they do so and under what circumstances, is altogether unknown. The usual course

of circumscribed pulmonary gangrene is quite different. A gangrenous focus from which the disease does not extend nor spread is rare. In many cases gangrenous destruction going on in its walls enlarges the cavity, and during this process the patient dies of exhaustion; in others, grangrenous matter is aspirated from the cavity up into the bronchial tubes, deposited in other parts of the lung, and a diffuse gangrene is produced. In a third class of cases the patients do not die during the course of the gangrene. The gangrenous cavity is emptied of its fetid contents, transformed into an abscess cavity, and the odor of the breath and sputa disappears, patient's appetite returns, he grows strong, and makes an apparent recovery. However, the abscess cavity does not close up nor contract; after months or years of more or less impaired health, the contents of the cavity undergo decomposition, the walls of the cavity are constantly being destroyed, and even a second gangrene may set in. The patients die of exhaustion, which, in the latter case, is accompanied by the usual symptoms of pulmonary gangrene. We know this much, that circumscribed pulmonary gangrene terminates in perfect recovery only when the gangrenous cavity is small. In the great majority of cases the disease ends in death. (Vide Herz in Ziemsen's Encyclopædia.)

The prognosis of acute circumscribed gangrene of the lung is, of course, always grave. In any given case it is, during the whole course of the disease, impossible to foretell whether it will terminate in death or in recovery. A diffuse pulmonary gangrene, a gangrenous pyopneumothorax may supervene at any time, or the patient may die of exhaustion due either to the progressive local destruction, or to the accompanying fetid bronchitis. The internal remedies at our disposal at the present time can hardly be said to have any effect as far as regards checking the progress of the disease. They merely add aid in sustaining the patient, in keeping him alive till the gangrenous process has come to an end.

These facts, well considered, seem to justify the attempt to cure the disease by surgical measures; by them alone can we hope to put a stop to the progress of the local gangrenous destruction. Operations on the lungs with a view to bring about the healing up of gangrenous cavities have been performed in the four following cases.

CASES.

Case 1. Messrs. Cayley and Lawson reported the following case at a meeting of the Clinical Society of London. (*Lancet*, No. 29, March, 1879, p. 440.)

A man, 45 years old, was admitted to the Middlesex Hospital, December 30, 1878. He had previously been laid up for five weeks with an acute pneumonia of the left lung. At the time that he entered the hospital he presented the usual symptoms of pulmonary gangrene with formation of a cavity in the lower lobe of the left lung. The general condition of the patient was not at all favorable for an operation. After an exploratory puncture had confirmed the diagnosis, Mr. Lawson made an incision in the ninth intercostal space just below the angulus scapulæ. The cavity was evacuated, washed out and a drainage-tube inserted. Patient felt very much relieved, but four days after the operation he collapsed and died. Dr. Cayley pointed out that the only chances patient had of prolonging his life were those given by the operation, and that, if patient had come under treatment earlier, his prospects would have been better. At all events the operation gave patient some relief.

Case 2. Gangrenous Cavity in Middle Lobe of Right Lung subsequent to Croupous Pneumonia.—Insufficient outlet through the bronchi—Adynamic condition of patient—Incision in the region of the angle of the scapula—Drainage with injections of carbolized water—Decided improvement for a week—Cessation of fetor of breath and expectoration—Return of fetid expectoration—Collapse and death twelve days after the operation. (Solomon Charles Smith, Halifax, England, 1879, *Lancet*, vol. ii., No. 3, 1880, p. 86.) The patient, a man about 60 years of age, had always been in good health, until two months previous to the operation, during which time he had had a little shortness of breath on going up hill. Two weeks previous to the operation he had a sudden attack of pneumonia of the right side, with chills, pain in the right side, pneumonic crepitus and rusty sputum. The case was not very severe, the temperature never exceeding 102°, and in about a week he got up. Two days later, the cough became worse, he felt weak, had to go to bed, and his breath had an offensive odor.

October 13, he suddenly expectorated half a pint of fetid gray fluid, and sank rapidly into a condition of collapse. On the next day, the patient was covered with clammy perspiration, his respiration was rapid and difficult, with loud tracheal râles; pulse 130, very feeble; could not lie down on account of the cough. The air of the whole room was extremely offensive on account of the gangrenous odor of breath and expectoration. The matter expectorated was principally a thick, tenacious, mucopurulent mass, but frequently alternating with this was a thin, gray, offensive fluid, which seemed to gush into his throat suddenly, in such quantity that he would spit out mouthful after mouthful of about half an ounce each, for three or four times in succession. The right side was slightly less resonant than the left, especially at the base, and at and under the right nipple. There was less respiratory sound on the right side and less vocal vibration, but all the sounds were greatly masked by tracheal râles; he had no pain; the tongue was brownish-black and dry, and the patient was very weak. Under invigorating and stimulating treatment he seemed to improve a little for a day or two, but then the expectoration diminished and he became worse. Four days later, a quantity of the same fetid fluid as before was expectorated, and he felt a little relieved, but soon afterward the expectoration stopped again and the adynamic condition of the patient increased.

On October 20, distinct cavernous respiration was heard below the spine of the right scapula, and external to and below the right nipple. The diagnosis was now made of a large cavity extending chiefly

through the middle lobe of the right lung, with no efficient outlet for the contained fetid matter, and a consequent adynamic condition of the patient from poisoning by the fetid pus. It was now resolved to operate, with a view toward procuring an outlet for the fetid matter, for the following reasons:

1. That the actual condition of the patient made it certain that he would die, and that very speedily.

2. That there would be some chance for his life if the cavity could be found and an opening made.

3. That it would be justifiable to explore with an aspirator, and if the cavity was found, to enlarge the opening and put in a drainage-tube.

At a point near the angle of the scapula, an aspirator-needle was inserted for three or four inches. No fluid escaped, but very fetid air was drawn through the tube. On holding a candle near the canula, the flame was blown to and fro during respiration, so that evidently a cavity had been reached.

Using the canula as a director, a knife was inserted between the ribs, and by the side of the knife dressing forceps were slipped in and the wound enlarged sufficiently to allow the introduction of a small india-rubber tube. Through the latter, a little carbolic acid solution was injected. This seemed to occasion a fit of coughing, when about half a pint of fetid pus, of the same character as the former offensive expectoration, was forcibly expectorated. The tube was left in the wound, which was covered by a large pad of a dozen folds of coarse muslin, wrung out of a solution of carbolic acid. This dressing was ordered to be changed every three hours.

For the first week after the operation, the improvement was very decided. For six days, the expectoration was very much diminished. The fetor also became much less, except at the time when the dressing was changed. He enjoyed his food more, and was altogether more comfortable. The respiration became much clearer in the left lung and the unaffected parts of the right lung, the moist sounds being much less frequent, and the tracheal râles only occasional. The discharge from the wound, however, continued extremely offensive, notwithstanding the daily irrigation of the cavity by a siphon. Whenever the dressing was changed, it was found to be soaked with a discharge for an area of five or six inches in diameter. As the water which escaped on washing out the cavity was only slightly stained, the offensiveness was attributed not to any retention of pus, but rather to sloughing within the lung.

Eight days after the operation the discharge had lessened a good deal, but the expectoration now increased and again became offensive. The pulse increased to 112; temperature, 100°. On the next day he was better, in the morning, had less cough and expectoration, and took food well. But the wound was beginning to slough, and a few gangrenous black shreds were discharged through the drainage-tube. In the afternoon he became very ill, with labored breathing, quick pulse, and profuse cold sweats. From this time he gradually became weaker, would take no more food, and died November 2, apparently from simple asthenia. An autopsy was not held.

CASE 3. A girl of 23 years was admitted to the Hospital of Christiania, Dec. 13, 1880. E. Bull. (*Nord. Medic. Archive*, 1881, No. 17.) A month previous to her admission she had caught cold, began to cough and to expectorate yellowish muco-purulent sputa. One week afterwards her sputa, and, a little later still her breath, became fetid. Two weeks later she got a rigor, and at the same time she began to complain of pain in the left lung. The color of the sputa was now brownish red. She lost strength and had no appetite. At the time of her admission into the hospital her pulse was 104, temperature 102°, respiration 30. She coughed a great deal and expectorated a frothy fluid of fetid odor and tinged with blood. In the left axillary region the percussive note was dull, slightly tympanitic and large râles were heard.

On January 4 were discovered in addition the signs of a pleuritic effusion which extended over the posterior side of the left lower lobe. A few days later an exploratory puncture was made in the fifth left intercostal space, in the anterior axillary line. The syringe drew a bloody serous fluid which contained a great number of leucocytes.

January 19. Auscultation over the fourth intercostal space, near the anterior axillary line, gave the signs of a cavity. An exploratory puncture was here made with Pravaz's syringe, which drew a few drops of a bloody, purulent, fetid fluid. An exploratory puncture made below the left angulus scapulæ showed the effusion into the pleural cavity to consist of clear yellow serous fluid.

A gangrenous cavity was diagnosed, situated in the lower anterior part of the upper lobe of the left lung, and serous pluritic effusion extending over the lower lobe of the left lung. The advisability of an operation was discussed.

On the 20th of December a swelling was found in the outer half of the left mamma, just where the exploratory puncture had been made into the gangrenous cavity. It was tender to the touch. The following day a subcutaneous emphysema was discovered on the anterior side of the left half of the thorax. A small incision made in the above described swelling gave exit to a little fetid reddish pus. On the 24th patient was anæsthetized, a transverse incision two inches in length, was made across the fourth intercostal space, and an abscess-cavity found below the mamma, containing a few tablespoonfuls of gangrenous pus, which was evacuated. In the fourth intercostal space an opening was effected with a pair of dressing forceps which were cautiously worked through the intercostal muscles and the adherent pleuræ. The index finger introduced through this opening, moved around in a cavity whose walls were composed of soft, friable, shaggy tissue. The cavity was washed out with carbolized water, a drainage tube inserted and an antiseptic dressing applied. After the operation her pulse was 128 and respiration 40. In the afternoon she coughed up a couple of tablespoonfuls of fresh blood. On January 25 she coughed less and felt better. On January 31, in the afternoon, she had several small hæmoptyses, and during the following days she expectorated matter considerably tinged with blood. Between the 3d and the 10th of

January the fetor of her breath would diminish one day and be worse the next. After the 10th of January her general health began to improve, the cough diminished, her appetite returned, and she felt stronger. After January 14, her breath and expectoration were free from odor; one week later the cough ceased entirely, as did also the fever. The wound healed, and the physical symptoms gradually became normal. After a long convalescence she recovered her full health. About six months after the operation she was able to resume her work as a servant girl.

Case 4.—John Schubert, a German laborer, aged 39, had healthy parents, but does not know the later history of his brothers and sisters. Habits good. No venereal disease. Was healthy till nine years ago, when he had to keep his bed for a few days, and the symptoms of his sickness were fever. Made a perfect recovery. Five years ago he was taken sick with pneumonia, which he thinks was of the right lung, though he is not sure. He then was very sick for a few weeks, and recovered. As he became subsequently a member of a lodge, and was examined by their medical examiner, it is presumable that recovery had been entire. During this last winter he worked in a packing-house, and coughed more or less the rest of the winter.

February 29. After a week of aggravated cough, he had a chill which lasted a couple of hours, and took to his bed March 4. Dr. Valin was called to see him March 5. The respiratory murmur was absent from the lower third of right lung, and rather increased elsewhere.

Dullness was well marked over the same area, and pain was also complained of in that region, but there was some sensation of pain around the outer border of the diaphragm all around the chest.

There had been constipation for several days, to relieve which he was drinking an infusion of senna tea. The expectorations were mucous, and frequent. The respirations, 42 a minute, and distressing. The pulse 112, temperature 102. He was given whisky, 2½ grs. quin. every three hours, and Dover's powder liquid ℥ss. every four hours.

March 6. There was some rusty sputa expectorated, which continued for a week, some streaks of blood being also present at times. Temperature during that time varied from 101 to 103, and was nearly normal. By March 15 the expectoration increased, and became more and more purulent. March 30 patient, upon very slight exertion, raised half an ounce of blood, and for the next three days some streaks of blood were present in the sputa, which from that time had a quite offensive odor.

April 5. Patient, upon trying to get up, had another hæmoptysis of about three ounces of blood.

April 6. Dr. C. Fenger saw the case in consultation, and found gangrene of right lung.

Dr. H. D. Valin.

April 6. I found patient lying in bed; pulse, 110; temperature, 101; respiration, 34. The air in the room, and especially in the neighborhood of the bed, had the fetid odor peculiar to gangrene. Patient's cheeks were a little flushed; otherwise he was pale, looked suffering and somewhat collapsed. He was troubled with a distressing cough, which prevented him from sleeping during the night. In the twenty-four hours he raised more than a pint of expectorated matter, which, on being poured into a glass, showed the three layers characteristic of pulmonary gangrene—an upper frothy layer, a middle layer consisting of a grayish thin fluid, and a bottom layer consisting of yellowish muco-purulent matter, streaked with blood, and also showing streaks and flakes of a dark gray color. Stethoscopic examination revealed the left lung and the heart to be normal. Percussing the right half of the chest, a clear note was obtained in the supra-clavicular, the infra-clavicular, and in the mammary region as low as the upper border of the fourth rib. Below this the percussion note was dull. In the axillary region there was likewise resonance down to the fourth rib, and dullness below and in the infra-axillary region. Percussion on the back gave a clear sound in the supra and infra-spinous regions; in the infra-scapular region the note heard was not exactly dull, but less resonant than on the other side. On auscultation, normal vesicular respiration was heard in the supra and infra-clavicular and in the upper axillary regions. On the posterior surface of the lung, vesicular respiration was accompanied by large mucous râles. No distinct respiratory sounds could be detected in the area of dullness in the infra-axillary and infra-mammary regions. At a point one inch below the nipple, on the fifth rib, a "Ventillant," a sound produced by the opening and closing of a valve, could be distinctly heard. No other signs of the presence of a cavity were as yet perceptible.

The case presented no difficulties to the formation of a diagnosis of pulmonary gangrene in anterior part of the lower lobe of the right lung. It was furthermore evident that more palpable signs would soon develop of a cavity, which would be situated in a part of the lung accessible to surgical interference. I advised patient to go to the hospital, and, as his life might possibly be saved thereby, to have an operation performed as soon as the evidences of a well-marked cavity would appear to be sufficient to justify operative measures. He was admitted to the Cook County Hospital April 11, 1884. On account of the unbearable stench surrounding him, he had to be removed from the common ward and put in a separate room. In the meantime cough and expectoration remained unchanged; he grew weaker, had been delirious at times, and his appetite was entirely gone; his bowels were regular.

April 12. Morning, pulse 104; temperature 100.2°. Evening, pulse 112; temperature 101. The right lung was again examined, and the area of dullness found to be unchanged, stretching from the fourth rib downwards over the infra-mammary and axillary regions. But in the centre of this area there was now a smaller one in which the percussion note was tympanitic; it extended 1½ inches downwards from the right nipple, and 3 inches transversely from the axillary into the infra-mammary region. Auscultation of this tympanitic area revealed distinct amphoric respiration, and amphoric or metallic râles.

April 13. *Operation.*—At 11 o'clock in the morning, in the presence of Drs. Murphy, Baxter and Randall, of the attending staff of the Cook County Hospital; of Dr. Valin, patient's former medical attendant, of Dr. Verity, and of the house staff of the hospital, patient was anæsthetized. A puncture was first made with a hypodermic needle in the mammary line, just below the fifth rib. From a depth of 1½–2 inches the syringe drew a thin, grayish-red fluid, which, on being poured into a glass, emitted the characteristic odor of gangrene. A transverse incision was now made, 3 inches long, parallel with the fifth rib, and having its mid point in the mammary line. The fifth rib was bared, and a 1½ inch piece was resected subperiosteally. A hypodermic needle detached from its syringe, was thrust in through the costal pleura; on being let go, it was observed to make slight movements corresponding to the respiratory movements, but they were not of sufficient extent to disprove the existence of adhesions between the two layers of the pleura. A long hypodermic needle was then screwed on the syringe, and was thrust in in different directions until the syringe again filled with gangrenous fluid. The syringe was unscrewed from the needle while the latter remained in place, in order to be used as a guide leading into the cavity. A large funnel-shaped canal was made with Paquelin's cautery, which was gradually pushed along the needle through the pleura and the subjacent pulmonary tissue, till, at a depth of about 1½ inch below the pleura, the cavity was entered. The opening was sufficiently enlarged to permit the index finger to enter the cavity, whose dimensions were found to be on palpation 3½ inches transversely, 2½ inches from above downwards, and about one inch antero-posteriorly. The walls of the cavity were felt to be rather firm and indurated. No shagginess nor detached shreds of pulmonary tissue could be detected. Drs. Baxter and Valin, who also made a digital exploration, confirmed these statements. The cavity was then washed out with a saturated solution of salicylic acid; as soon as it had filled, a vehement cough expelled the fluid mixed with air. Two large fenestrated drainage-tubes, and one of smaller size which was not fenestrated, were introduced into the cavity and held in place by a stitch to the skin. The whole operation was performed, so to speak, bloodless, as boring the pulmonary tissue with the cautery produced no hæmorrhage. The incision wound was left open, was dusted over with iodoform, and a heavy antiseptic dressing applied. Patient was brought to bed, and warming bottles were placed along his extremities.

At 1:30 P. M., the day of the operation, patient rested quietly; his cough had become less frequent. At 3 P. M. he asked for something to drink, and was given a glass of milk. Champagne, egg, lemonade, and milk with seltzer were ordered to be given when required. At 7:30 P. M. pulse 84, temperature 101.2°. Patient felt comfortable; he had some soreness and pain in the neighborhood of the wound. He was given a hypodermic injection of morphia and atropia and some cough medicine.

The air in the room was not exactly offensive. The fetor of the expired air had diminished so much that I could now sit by the patient and speak to him without covering his face with a towel, as I had always been obliged to do before.

April 14. Patient had passed a comfortable night; pulse in the morning 96; temperature 100.4. In the evening, pulse 96; temperature 101.2. His cough had gone on diminishing. The expired air and the sputum still emitted a gangrenous odor; the quantity of the expectorated matter was about ½ a pint. The dressings were saturated with a bloody fluid smelling of gangrene. The cavity was washed out with a solution of salicylic acid; this brought on a violent coughing, which caused several shreds of lung tissue, one of them 1½ inch in length, to be thrown out at the wound through and beside the drainage-tubes. Toward the end of the coughing-spell, the fluid ejected from the cavity was tinged with blood. The walls of the canal I had made with the cautery through the pulmonary tissue were covered with a grayish-brown eschar.

April 15. Morning, pulse 92; temperature 100°. Patient had passed a comfortable night, although he had not received any morphia. Evening, pulse 92; temperature 101.2. Patient was dressed; odor less marked; further shreds of lung tissue were thrown out.

April 16. Morning, pulse 90; temperature 100. Evening, pulse 94; temperature 100.5°. Patient was dressed. There was less discharge and less odor; a few fragments of pulmonary tissue were thrown out.

April 17. Morning, pulse 84; temperature 99.6°. Evening, pulse 90; temperature 99.8. Patient commenced to eat solid food.

April 18. Morning, pulse 85; temperature 99.° Evening, pulse 84; temperature 100.2°.

April 18. The wound had so far been dressed every day. The cavity was washed out but slightly on account of the distressing cough which invariably followed. There was now scarcely any odor to the breath or the sputa, which had diminished considerably in quantity. The whole (external) wound was now covered with granulations. The walls of the canal presented a gray pigment; they were smooth, bloodless, and had the appearance of a cut surface of pulmonary tissue in a state of gray hepatization.

April 19. Evening, pulse 84; temperature 101°. This was the last time that the temperature was found to be higher than normal.

April 23. Pulse and temperature normal. Patient slept well, his appetite returned, and breath and sputa had become odorless. The quantity of the expectorated matter which was muco-purulent in character, had been reduced or 2 to 3 ounces in the 24 hours. A small amount of yellow pus which, however, had no odor, was found in the dressings. This same thin yellow pus, mixed with air, was seen in the cavity instead of the former grayish or grayish-red, thin fluid. The walls of the canal were pretty well covered with a layer of granulation tissue.

April 29. The old drainage tubes were removed and substituted by a single one of the size of a finger.

May 1. Patient continued to sleep well, had an excellent appetite, and was gaining flesh. He

coughed once in a while, and during the day he raised about 1½ 3 of muco-purulent sputa. In the area of dullness surrounding the cavity, fine subcrepitant râles were heard.

May 4. The opening into the cavity had contracted considerably. As the drainage tube was found pushed out several times and lying in the dressings, it was not again replaced.

May 11. The wound, which had not been dressed for five days, was mostly healed. A small fistulous tract only remained which communicated with a bronchus; for a few drops of yellow pus mixed with a little air, were forced into the wound when patient was made to cough. On percussion of the chest resonance was obtained in the infra-mammary region down to the fifth rib; in the axillary region down to the sixth. Dullness only remained in an area about two inches in diameter right around the wound. The fine sub-crepitant râles had disappeared; there was normal vesicular respiration all around the fistula, auscultation could detect no signs of a cavity. In the infrascapular region the respiratory sounds were normal; there were no râles.

May 12. Patient was allowed to sit up a little every day.

June 26. Patient has grown fat and strong and feels well in every respect. A small fistulous opening has remained through which a fine probe passes in for a distance of 2½ inches. When patient is made to cough, neither air nor fluid escapes from this fistulous opening. But a few days ago when I injected a small syringeful of tincture of iodine into the fistula, a violent fit of coughing was thereby produced. The sputum raised by this cough contained brown specks of tincture of iodine, which could be seen with the naked eye. They were proved to be iodine by the starch test. It is evident that this fistula is still in communication with a bronchus.

Patient left the hospital.[1]

These cases, though only four in number, showing two deaths and two recoveries, satisfactorily prove to my mind that opening a pulmonary cavity in acute cases of circumscribed gangrene of the lungs, is a justifiable operation. In not one of the above cases did any mischief, or even any inconvenience to the patient, result from the operation. On the contrary, the immediate effect of the operation was a very decided improvement in the condition of the patient, even in the two fatal cases. The distressing cough was, in every one of these four cases, greatly diminished at once. The explanation of this is to be sought not only in the immediate evacuation of the gangrenous contents of the cavity, but also in the fact that the fluid re-accumulating in the cavity, largely ran off through the drainage tubes, whereas, before the operation it had been aspirated up into the bronchi, thereby producing a more or less extensive fetid bronchitis. This bronchitis ceased very rapidly, and there can be no doubt that it, more than the presence of the cavity itself, is the cause of the constant coughing.

The fetor of the breath and sputa diminished simultaneously with the cough, as would naturally be expected.

As to the cause of non-success in Cayley & Lawson's case, the authors themselves state that the operation was performed too late, and that it might have been successful if performed at an earlier stage of the disease. In Smith's case no autopsy was held, and so nothing can be known as to the cause of its failure. Bull's case and my own have this in common, that in both the cavity closed in about four weeks; that the fever decreased together with the fetor of sputum and ceased in Bull's case in three, in my own case in two weeks after the operation. Cessation of the fetor was followed by improvement in the general condition of the patient, whose appetite and strength returned.

I now wish to add a few words concerning the operation itself and the after-treatment.

Operation.—We should operate as early as possible, that is, as soon as the physical signs of a cavity have become manifest. We should not operate (for anatomical reasons) when the cavity is covered by the scapula or is situated in the apex of the lung. The latter will hardly ever happen in cases of pulmonary gangrene. The location of the cavity should be ascertained by making an exploratory aspiration with a fine needle. The opening into the cavity should be made at the spot where the cavity comes nearest the surface; for not only should we injure as little lung tissue as possible, but we should also have the shortest possible canal into the cavity; the shorter the canal is, the easier will it be to keep it open and to drain off the contents of the cavity. Besides, we may reasonably expect to find pleural adhesions where the cavity is most superficial. These will prevent the operation from causing a pyopneumothorax. It almost seems that, under these particular circumstances, our natural dread of opening a pleural cavity is founded in theory more than in practice. In not one of the 20 cases now on record, in which pulmonary cavities were opened, did such a complication occur.

The incision should be made parallel with the ribs, one or more of which should be resected if necessary. It is essential to have free access to the cavity, as well for the immediate digital exploration made for the purpose of removing large pieces of dead pulmonary tissue, as for the sake of having a wide canal (subsequently) into which sufficiently large drainage-tubes can be introduced. Experience has shown that these canals are liable to contract and close up before the pulmonary cavity has become obliterated.

The canal leading through the pulmonary substance into the cavity, is best made by means of the thermo-cautery, as was proposed by Albert and Koch. Their method has been strongly advocated by Mosler as being superior to any other as yet suggested. The smaller burner of Paguelin's cautery should, as was done in my case, be gradually worked in through the substance of the lung along a detached hypodermic needle, which is used as a guide. The cautery will thus be pushed in not merely in the direction of the cavity, but also in the shortest line existing between the latter and the surface. Working

[1] For valuable assistance in the after-treatment I am greatly indebted to Dr. E. P. Davis, then House Surgeon at Cook County Hospital.

slowly with the red-hot cautery will produce no disturbing hæmorrhage from the pulmonary parenchyma, and the canal can easily be enlarged to such size as may seem convenient. Having reached the cavity, we should explore it with the index finger; if large and detached pieces of lung-tissue are discovered, we should remove them with a pair of forceps, being very careful to avoid causing any hæmorrhage by tearing off still adherent shreds of pulmonary tissue. Our knowledge that it is not uncommon for the walls of a gangrenous cavity to bleed considerably, will render us cautious while making the digital exploration.

Whether it is advisable or not to make a counter-opening for the sake of facilitating draining and washing out of the cavity, can as yet hardly be stated. It has not been tried in any of the cases in which operations were performed for pulmonary gangrene. If the counter-opening, in order to be effected, should demand perforation of a thick layer of pulmonary parenchyma, I think most surgeons would hesitate to prolong the operation on this account; for patients suffering from gangrene of the lung are, when operated upon, rather debilitated and exhausted. In my own case, I felt like trusting to one opening, reserving the operation for a counter-opening for some future time if necessity should call for one. Neither in Bull's case nor in mine did such necessity arise.

I forgot to mention one point in connection with the thermo-cautery. A knife, trocar, or some blunt instrument may well be used for opening a cavity which is situated close to the surface of the lung. But in cases where any amount of parenchyma has to be perforated, the thermo-cautery is by far the safer instrument. Now, I do not think it possible to ascertain by auscultation whether a few lines only or an inch or more of lung substance lie between the cavity and the wall of the thorax.

The cavity should be washed out with some antiseptic solution if practicable; but great care should be exercised in doing so. If the cavity communicate with a larger bronchus, and we allow the solution to run in freely, we may, especially during the chloroform narcosis, be so unfortunate as to fill the bronchi of both lungs to such an extent as to produce suffocation. Moreover, injections of even a small quantity of fluid, the nature of which seems to be rather irrelevant, is, in some cases, followed by a fit of coughing sufficiently vehement to produce hæmorrhage from the walls of the cavity. We should, therefore, allow a little fluid only, and that under low pressure, to run into the cavity at a time, and closely watch the effects thereby produced in the patient. It may be that simply draining the cavity without any washing out, is sufficient to secure the beneficial effects of the operation. There is a great difference right here between Bull's case and mine. In Bull's case injection into the cavity never produced any coughing. In my case the smallest quantity of fluid, not only when injected under pressure, but also when allowed simply to flow into the wound with extreme gentleness, was immediately and invariably followed by violent coughing. Mosler in treating other non-gangrenous cavities of the lungs, has experienced the same thing. He even attributed the death of one of his patients to the injection of a solution of thymol.

The wound may be dusted over with iodoform; this substance has proved effective in preventing the setting up of inflammatory disturbances by fetid fluid discharges coming into contact with the wound, as for instance in operations about the mouth and the rectum. But whether iodoform is indispensable in surgical cases of pulmonary gangrene is questionable. No case has as yet been reported in which the gangrenous fluid of a pulmonary cavity as such did much harm to the external wound; indeed, the fluid contained in these cavities does not seem to be septic.

A heavy antiseptic dressing should, of course, protect the wound. Septicæmia or pyæmia is just as likely to develop from a wound in the lung as from a wound in any other part of the body. But as it is difficult, nay, next to impossible thoroughly to disinfect a pulmonary cavity, the consequences of sepsis would in these cases be disastrous.

After-Treatment.—How often the dressings will require to be changed, will be indicated by the amount of discharge found in them. In the beginning the wound will probably require dressing every day; later on, less often will be sufficient. Daily washing out of the cavity may be desirable, but does not seem to be essential. As mentioned above, it had probably better be omitted if followed by violent coughing. The internal treatment should be carried on in accordance with the principles commonly laid down for the treatment of the disease in question. Disinfecting or deodorizing inhalations, however, whose influence it is difficult to comprehend from a rational a priori standpoint, seem to be rendered superfluous by the operation. If the canal should close before the cavity has cicatrised, I think we need not hesitate to remedy the matter by a second operation. In a favorable case, patient's general health will be far better than it was at the time of the first operation. As yet, however, no case has been published in which a second operation had become necessary.

In conclusion, I shall repeat that, in my opinion, the above cases clearly prove the operation for acute, circumscribed, pulmonary gangrene, to be a justifiable one. When performed in the above described manner, it cannot be said to be attended with any immediate danger to life; moreover, when performed early, we may reasonably hope that it will not only afford temporary relief, but effect a permanent cure. I therefore think that this operation greatly deserves to receive the attention of the profession.

214 East Ohio St., Chicago, Illinois.

A farewell banquet was given to Drs. S. C. Busey, D. W. Prentiss, W. W. Johnston, and J. S. Billings, at the Arlington Hotel, Washington, on June 28, by the Washington Obstetrical and Gynecological Society, on the occasion of the departure of these gentlemen for Europe to attend the Copenhagen International Medical Congress.—*Medical News.*

MEDICAL PROGRESS.

MEDICINE.

On the Connection of Acute Diabetes with Disease of the Pancreas.—Dr. George F. Duffey (Dublin *Journal of Medical Science*) gives a case of acute diabetes of only two months' duration, terminating, after a sudden onset of vomiting and diarrhœa, in death by coma. The patient was a country farm laborer, over six feet in height and well made; his age was 24, but he looked older. The first symptoms of his illness that he noticed were polyphagia, polydipsia, polyuria, and emaciation. While in the hospital he passed in the twenty-four hours from 215 to 170 ounces of highly saccharine urine, of a specific gravity from 1045 to 1040. There was pain in the epigastrium, and tenderness of the abdomen upon pressure. The diarrhœa persisted for a week; the stools were somewhat of a dysenteric character, being very frequent, but small in quantity, of a jelly-like consistence, and extremely fetid. For the first two or three days they contained white masses resembling lumps of undigested caseine, but these disappeared on giving him his milk peptonised. The temperature continued normal up to within three days of his death, when a state of collapse, with cold extremities, supervened. The post-mortem examination showed nothing remarkable to the naked eye, with the exception of the pancreas, which was hypertrophied and felt extremely indurated.

Dr. Duffey, in the further consideration of his case, reviews the statements of various authors to show the connection between disease of the pancreas and diabetes, and finds that in most of the cases cited the organ has been found to be atrophied, rather than hypertrophied. This he explains by the supposition that the atrophy is a sequence of the hypertrophy, and that in those cases of diabetes which have been of some duration the pancreas may at first have been enlarged, and subsequently have been atrophied; but that in acute cases of the disease (like his own) there had not been sufficient time before the patient's death for the atrophic change to occur, which generally follows primary inflammatory enlargement of the gland. His case further bears out the observations of Dr. Stephen Mackenzie—*i. e.*, that all of his cases, with one exception, dying at or below the age of 25 years, died of coma; and that the rapid course of the disease, which as a rule is equivalent to its severity, favors the occurrence of coma. There was also, in these cases of Mackenzie's, a freedom from, or only slightly developed, affections of the lungs.

The consideration of this case is followed by an article, by Mr. P. S. Abraham, giving his notes on the microscopical sections in two cases of diabetes mellitus, of which the case reported by Dr. Duffey constitutes one. Mr. Abraham devotes his attention especially to the condition of the nervous tissue in the cerebellum, pons and medulla. He found in one case, as most marked, numerous masses resembling the so-called "corpora amylacea" and "colloid" bodies, of all sizes, from the bulk of a leucocyte to twenty times the diameter. In Dr. Duffey's case a few of these masses were observed in the pons, in contiguity to the turgid blood-vessels. The pancreas he found to present the characteristics of carcinoma. He also found the kidneys to show inflammatory infiltration and fatty degeneration, while the lungs gave patches of hepatization, with the usual appearances of pneumonia, which last does not seem to accord with Dr. Duffey's statement of freedom from lung trouble.

The Antipyretic Treatment of Typhoid Fever.—There has recently been a pretty thorough discussion of this mode of treatment in the London Medical Society, and carefully prepared papers on the subject have been read by Drs. Coupland, Bristowe and Cayley. The *British Medical Journal* has had a leader on the subject, and Dr. J. O. Affleck has, in its pages, given an interesting summary with some valuable deductions.

This disease owes some of its dangerous characters and damaging effects to the long continuance of pyrexia; the toxic action of the fever poison, particularly on the nervous system, the local lesions in the intestines, and their results in the structural changes and atrophies which render the assimilative processes comparatively inert, form a large part of the morbid process. Since the introduction of the clinical thermometer, attention has been turned in a special manner to the treatment of the pyrexia, with the view of lessening its amount, or at least, of breaking its continuity. For this purpose, various antipyretic drugs of known potency (quinine, salicylate of soda, salicin, kairin, etc.) have been turned to account, and they undoubtedly, in many instances, succeed in bringing down for a time a high degree of temperature. To most of them, however, there exists the objection that their continuance upon which, indeed, their efficacy depends, is often ill borne by the digestive organs, and in some cases they appear to be rather hurtful than otherwise.

The modern employment of the cold bath or cold bathing of the body in fever appears to have been first resorted to in Germany, by Liebermeister, Brand and others. The advantages of this mode of treatment are stated by Dr. Cayley to be as follows:

1. It fulfils the physiological indications that by keeping down the temperature, the febrile metabolism of the tissues, and the accummulation in the blood of the products of this metabolism—and to this Dr. Murchison attributes most of the symptoms of the typhoid state—are much diminished. The granular infiltration and softening of the central nervous system of the heart, of the liver, of the kidneys, of the voluntary muscles, is to a great extent prevented; and, by the stimulating effect of the treatment on the vaso-motor system, that want of tone and general relaxation of the arteries, which is a marked feature of the disease, is counteracted.

2. Where efficiently applied, the treatment produces marked alleviation of the symptoms. When the temperature is kept down, the so-called typhoid symptoms are seldom seen, etc.

3. Complications are rendered neither more frequent nor more severe.

4. The rate of mortality is greatly diminished.

Dr. Affleck discusses these four conclusions in order. As regards the first, he considers that the mere height of the temperature and its effects on tissue-metabolism, will not satisfactorily account for the peculiar symptoms of typhoid fever. A septic process is in operation of which the temperature is but one of the manifestations and not always, *per se*, an accurate or reliable one. In addition, in enteric fever there is a distinct visceral lesion, which obviously bears some relation to the temperature. It can scarcely be contended that the mere combating of the febrile action can counteract either of these great factors in the disease. This line of treatment is simply directed to a mere symptom, and is incapable of influencing the still existing cause underlying all the phenomena.

As to the second point, viz., the efficient application of the cold bath treatment, this is limited by requirements which are impracticable in a very considerable proportion of cases. It is difficult to recognize typhoid fever "from the first," and, at least in hospital practice, most of the cases have gone on for a good many days before they come under the cognizance of the physician. Further, its advocates recommend great caution in its use where severe local lesions are indicated, although it is just in such cases that the temperature is often highest.

Thirdly, as to the complications, it is doubtful that pulmonary diseases are rendered much less frequent in view of testimony of a directly contrary character; while as regards intestinal lesions, there is evidence that the liability to these is somewhat increased.

With reference to the last point, a greatly diminished mortality rate, here, too, the proof is inconclusive. First the diagnosis is a matter of uncertainty, the numbers quoted may include morbid conditions which are known to simulate typhoid fever. Then of late years a vast improvement has taken place in nursing, dieting, general hygiene, and in the medical treatment of such cases. Jaccoud asserts "that while the mortality in typhoid under the old method of treatment was about 19 per cent., under the antipyretic mode it is under 11 per cent;" but Dr. Affleck gives the mortality statistics of the typhoid wards of the Edinburgh Royal Infirmary during the 4 years of 1880 to 1883, where in 509 cases there were 60 deaths. Thus, under a non-antipyretic treatment the total mortality was not more than 12 per cent., and if cases moribund when admitted, and dying in less than forty-eight hours, be excluded, the rate is reduced below ten per cent.

Dr. Affleck's objections to this treatment are, the fatigue involved, increasing risks by movements in progressive bowel lesions; and the depressing effects upon the circulation, with the risks of intestinal congestion, hæmorrhage, etc. He therefore contends that the limit of its applicability is a comparatively narrow one.

ALGID COLLAPSE.—Hallopean, in *La France Médicale*, (*Edinburgh Med. Jour.*), under the name of Algid Collapse, describes a condition characterized by partial or general coldness of the body, accompanied with prostration. He regards the condition as the opposite of what occurs in fevers, and that it is due to an opposite state of the vaso-motor nerves to that which is present in fevers. The condition is specially observed in cases where the abdominal viscera are the seat of violent irritation, as in cholera, irritant poisoning, intestinal strangulation, and injuries to the abdomen. The lowering of the temperature usually begins in the extremities and face, and may be confined to these parts, but may become general. The contraction of the capillaries in these parts, and the consequent diminution in the amount of heat thus lost, would lead to the expectation that the internal temperature would be raised, which is not generally found to be the case, and this is explained on the supposition that there is a concomitant diminution in the activity of combustion. The pulse is small, the heart sounds are very feeble. The integuments are pale or cyanotic, and covered with a cold perspiration. There is often a degree of dyspnœa not explicable by respiratory lesion. The urine is diminished, and is often albuminous. There are muscular cramps, and the patient suffers from vertigo. He holds that the condition is due to the irritation of the sympathetic centre by the nerves going from the affected part, and through the sympathetic the calibre of the arteries is diminished; that by this means there is venous engorgement and deficient oxidation in the lungs, etc. He believes the condition is not to be explained by a general affection of the circulation, but is due to local disturbances in the circulation and the calorification. And this, he thinks, is proven by the symptoms of the collapse being limited to certain parts, particularly the face and extremities.

FAT CRYSTALS IN FÆCES IN OBSTRUCTION TO THE PANCREATIC DUCT.—Ziehl in the *Archives Générales de Médecine* (*Edinburgh Med. Jour.*), says that fat is mixed with feculent discharges in the case of obstruction to the pancreatic duct in various forms, either as yellowish compact masses, as an oily fluid, or more rarely in the form of acicular crystals united in bundles, and which can only be found by microscopic examination. These crystals had been described by Friedreich in two cases. They are not crystals of tyrosin, as has been maintained by some. Tyrosin crystals are light-brown, and are not soluble in ether, whereas these other crystals are clear and transparent, and are soluble in ether. And he records a case in which the presence of these crystals in the stools helped him to diagnosticate a case of malignant disease of the head of the pancreas. In it the motions, which were dry, formed, and silver-gray, contained a large quantity of microscopic needle-like crystals, which were either isolated or united in bundles, and which, after being dissolved in ether and then vaporized, left an abundant deposit of fat.

DISCHARGE OF A NECROSED ARYTENOID CARTILAGE DURING LIFE. — Dr. Schiffers presented to the Société Médico-Chirurgicale de Liége (*Annales*) an anatomical specimen in two pieces which represented the left arytenoid cartilage of a man 38 years of age, who had suffered from a severe attack of typhoid fever.

The largest of the two pieces was discharged during a threatening attack of asphyxia. Two or three months later, when all symptoms of dyspnœa had subsided, Schiffers saw lying across the glottis the second portion of the cartilage, which was smaller, and its most delicate extremity pressed a little into the posterior third of the right inferior vocal chord. While attempting to remove it a fit of coughing caused its expulsion. For some days before he again presented some symptoms of laryngeal stenosis. Since this removal of the second piece he has had no trouble, is robust and attends to his ordinary business.

At the last laryngoscopic examination, only the right inferior vocal cord was to be seen. The cord was large, and its functions were normal in the movements of respiration and phonation. During the emission of the sound *e*, it touched the border of the left inferior vocal cord, which was observed with difficulty. At the time of the first examination there were symptoms of unilateral paralysis of the crico-arytenoidei postici. The voice was relatively good, the tone was veiled, but the hoarseness not marked.

SURGERY.

Spina Bifida Cured by Elastic Ligature.—Dr. Antonio Turretta has republished from the *Giornale di Clinica e Terapia* of Messina, a case of spina bifida successfully treated by the elastic ligature. His aid was requested for a female child two months old, apparently in good health. She had a tumor as large as a small apple in the middle line opposite the two last cervical vertebræ. It existed at birth, and had since slowly increased. It was supported by a pedicle which measured an inch and a half in circumference. The covering skin was very thin, and of bluish-red color. The tumor was soft, flaccid, and fluctuating. Under strong pressure it diminished somewhat in size; the child cried, and slight convulsive movements were excited in the limbs. No other deformity was present, neither was there paralysis of any organ. An exploratory puncture at the base of the tumor with a trocar gave exit to a thin, transparent liquid of alkaline reaction. The tumor shrank, and the aperture was closed with iodoform collodion. Distension and fluctuation were again perceptible in twelve hours. The tumor having been half emptied by another puncture, its pedicle was constricted with a couple of turns of elastic ligature. At the moment of constriction the child cried, the face became livid, and some clonic movements were excited; but in a few hours the patient took the breast and rested. The next day vomiting was persistent, there was a tendency to coma, and twitching of the upper limbs. The condition on the third day was unchanged, and a small dose of calomel was given each day. All these symptoms had subsided on the sixth day, and the ligature with the tumor separated on the twelfth day, leaving a granulating surface, which gradually contracted. The cicatrix was complete, and the child cured on the twenty-seventh day.

Dr. James Weaver in a note refers to this case as corresponding exactly with one reported by him to the *Lancet* in 1870, his patient being now a hale and strong boy, the only remains of the tumor being a space about the size of one's palm, covered with long hairs, on his back.

OBSTETRICS AND GYNÆCOLOGY.

The Measurement of the Foot as an Index to the Size of the Child.—Dr. Alfred Gönner, of Basel, gives (*Zeitschrift für Geburtshülfe und Gynäkologie*) an attempt to overcome the difficulty in determining the size of the child's head in breech and podalic presentations. His plan is (*Medical Times*) to measure the foot, and from this datum to estimate the size of the child, and, therefore, of the head. He points out that the measurement of the foot is one easily made, and therefore, that his method has in this respect the advantage over the other modes by which it has been proposed to estimate the size of the child, such as measuring its length, and measuring the distance between the fontanelles. Dr. Gönner has measured and weighed 100 children. He comes to this conclusion: that if the foot measures more than 8 centimetres (nearly 3½ inches) in length, the child weighs more than 3,000 grammes (about 6 lbs. 10 ozs.). A foot more than 3½ inches long, therefore, makes it probable that the child is above the average weight, and that there will be more than usual difficulty in the extraction of the head. If the foot be only 7.6 centimetres (about 3 inches) long, a child of moderate dimensions may be expected; and a foot-length of only 7.3 centimetres (a little more than 2¾ inches) would justify us in assuming that the child was premature. It is interesting to note, also, that Dr. Gönner finds that the feet of female children are smaller in proportion to the size of the body than those of males. He suggests that the children of the educated classes will probably have relatively smaller feet than those of the laboring classes, but his own field of observation has not supplied him with the materials for testing this point.

The New Orleans *Medical and Surgical Journal* has been re-organized, as far as the editorial department is concerned. Three of the old corps retire, and the remaining two unite with eight others to form the New Orleans Medical Publishing Association. Those who have undertaken this work are active and well-informed young physicians, who promise a good journal.—*Medical News.*

Yellow Fever.—One death from yellow fever is reported at Pernambuco by the consul at that place, for the week ending June 7th, and three deaths at Santiago de Cuba for the same period.

Thirteen deaths from this disease are reported by the consul at Rio for the two weeks ending May 31st.

Reports from Ship Island, Sapelo, and Cape Charles quarantine stations indicate a healthy condition of affairs at those stations, with no yellow fever cases in hospital.—*Medical News.*

THE

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PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JULY 19, 1884.

THE CHOLERA. ITS PROGRESS IN FRANCE. — A cablegram from the U. S. Consul at Marseilles to Secretary Frelinghuysen under date July 10, gives the most reliable information at our command as to the progress of the epidemic during the last week. It says: "The situation at Toulon is unchanged — 14 to 17 deaths daily from cholera. Marseilles is worse. The deaths since Friday, inclusive, are seven, eleven, fifteen, twenty-five, twenty-three, twenty-three. Last night, July 10, twenty-two in twelve hours." Under date July 11, thirty-one deaths are reported at Marseilles up to noon of that day. A dispatch dated July 13, states that up to 9 P. M. there had been 57 deaths in Marseilles and 36 in Toulon during the preceding 24 hours.

Few cases have as yet occurred outside of these cities. Two cases were reported, July 10, at Transylvania, three at Port Mahon in Minorca, and one at Nimes in France. There is no cholera at Rome, and none at Leghorn. The view so strongly urged by Dr. Koch, that the microbe is responsible for cholera, is as strongly opposed by a number of French physicians. They have carefully inoculated a number of animals with Asiatic microbes, and have failed in every instance to give them cholera.

We believe that thus far Dr. Koch's experiments have all met with like results. Until more satisfactory proof to the contrary shall be adduced, it is quite as reasonable to presume that the microbe is simply a concomitant as that it is the *cause* of cholera.

Reports state that Paris is in excellent sanitary condition. No cholera has yet appeared there.

The French Minister of Commerce has written a letter to the Academy of Medicine, which will hold a meeting to-morrow, June 16, asking the Academy "to give an authoritative opinion in regard to the treatment of cholera cases, and the best measures to prevent the extension of the disease." At an early date we hope to present their reply to the readers of the JOURNAL.

INOCULATIVE PROTECTION AGAINST HYDROPHOBIA. —In the JOURNAL of July 12, under the head of Medical Progress, is an account of a communication by M. Pasteur, concerning his investigations and experiments with the virus of rabies, which is well calculated to create the impression that the diluted virus could be used by inoculation successfully to protect man as well as dogs from liability to attacks of that dreaded disease. In the present number of the JOURNAL our correspondent in Paris refers in his letter to the same subject, mentioning several cases in which the inoculation was tried in patients previously bitten by rabid animals, but which patients all died. Now a medical friend in St. Louis sends us the following item of correspondence, the closing paragraph of which asserts "that the idea of protecting *man* against hydrophobia by inoculation of rabic virus, has for the present, at least, not been investigated." From these various statements, we infer that some time is likely to elapse yet before a bite from a rabid animal can be rendered certainly harmless by inoculation with attenuated rabic virus. The note from our friend is as follows:

"INTERESTING CORRESPONDENCE ABOUT HYDROPHOBIA.—(From the *Courrier Des Etats Unis*). M. Joseph Braman, of New York, has addressed the following letter to M. Pasteur, the illustrious French chemist:

"'As a member of the American Public Health Association, I congratulate you on the discovery of a remedy to cure hydrophobia. At the next meeting of our Association I shall have the pleasure of proposing you as an honorary member.

"'Will you have the kindness to inform me: 1. Whether quills dipped in the virus could be used, as is being done in vaccination to prevent small-pox? 2. How long will the virus keep and be effective? 3. Can any be sent here which would last several weeks?'

"The following answer, signed by Dr. Roux, was received by M. Braman:

"'M. Pasteur instructed me to answer your letter of May 2.

"'The journals you have read have probably not given an accurate account of M. Pasteur's last statement, in which the subject of a *remedy against* hydrophobia has not been mentioned. M. P. has simply announced that rabic virus can be obtained of diverse

degrees of virulence, and furthermore, that *dogs* can be *protected* against rabies by inoculation of a carefully selected virus, which is obtained through a particular process.

"'It is impossible to send the virus a great distance; further, it must be well understood that the idea of protecting *man* against hydrophobia by inoculation of rabic virus, has for the present, at least, not been investigated.'"

"WOLVERHAMPTON AND STAFFORDSHIRE HOSPITAL. CASES OF HEART DISEASE RELIEVED BY BLEEDING."—Under this title, the *Lancet*, for May 31st, of current year, publishes notes of three cases, reported by W. Collier, M.A., M.B., Cantab., late House Physician. These are interesting from their novelty in this day and generation, when the lancet is almost a discarded instrument. They would seem to indicate, however, that the reaction which succeeded the indiscriminate employment of venesection, is weakening, and that a partial return to the lancet is gaining favor. Let us now examine the cases in question with reference to the blood-letting. All three presented signs and symptoms of venous stasis as a consequence of cardiac weakness. In all three were mitral murmurs, with evident enlargement of the heart. Ten minims of the tincture of digitalis and five grains of the carbonate of ammonium were administered to the first patient every five hours; also, four ounces of gin during the day. Thirty-eight hours after admission the symptoms had so increased in severity, that it was decided to abstract four ounces of blood from the arm. This was at once followed by such marked improvement that at the end of forty days the patient was discharged convalescent.

The second patient received a draught of the infusion of digitalis with ammonium carbonate and spirit of chloroform every six hours for four days. Nevertheless, the symptoms became so urgent on the fourth day as to render venesection advisable. Accordingly, as in the previous case, four ounces of blood were taken from the arm, with the same happy result. In the third case, the symptoms were so alarming at the end of five days, in spite of ten minims of tincture of digitalis and carbonate of ammonium every six hours, that eight ounces of blood were abstracted from the left brachio-cephalic vein, relief from the severity of the symptoms following almost immediately. Both patients were subsequently discharged convalescent, though one, owing to a relapse, had to be readmitted, and shortly afterwards died without a repetition of venesection.

In commenting on these cases, Mr. Collier thinks the use of the lancet was justified by the urgency of the symptoms due to the extreme engorgement of the venous system, since the overburdened right ventricle was powerless to react to the cardiac stimulants administered until relieved of a part of its load by the blood-letting. Furthermore, the benefit was in all three cases sufficient, in his opinion, to warrant the same proceeding in all similar cases.

It is so simple an operation to draw a few ounces of blood from the arm, and it was followed by such good results in the cases cited, that it may seem hypercritical to question its propriety under such circumstances. Nevertheless, might not the end it subserved have been brought about in another way and without the objections that may be urged against the lancet?

In the first place, the letting of blood entails a loss to the system of not merely serum, but likewise of blood corpuscles: A consideration of importance, since the blood of patients suffering with chronic heart disease is already spanæmic in most cases, and can illy spare any further loss of its globules. Secondly, as the internal medication employed had produced no appreciable effect at the end of several days, much valuable time was lost, for every hour, during which the struggle was prolonged, the heart lost ground. These objections, which may be urged against the final resort to venesection, can not be claimed in regard to prompt and free catharsis. Elaterium, or some other hydrogogue cathartic, would have been capable of so diminishing the surplus of fluid in the venous system, as to have enabled the heart to respond to means employed for its stimulation. And this proceedure, without being carried to the extent of depletion or possible gastro-enteritis, would not have been attended by any waste of corpuscular elements, nor probably by a delay of from thirty-eight hours to four days.

Again, the digitalis might have been exhibited at shorter intervals and in much larger doses. Indeed, the administration of a drug should be regulated by its effects and not by arbitrary rules of dosage. Had it in these cases been pushed until its full physiological action had begun to manifest itself, that is, until it had lessened the frequency and augmented the force and fullness of the pulse, it would have compelled the heart to react in spite of the venous engorgement. Free diuresis would have resulted with all its ensuing benefit. Right here it may be remarked, the great reason why digitalis so often disappoints the practitioner is, that he fails to employ it freely enough, being fearful of its cumulative effects. Yet these may be avoided if careful watch be kept over

the pulse and the drug promptly discontinued upon the first discovery of nausea and undue slowing of the heart's contractions. In hospital, if not in private practice, such watchful surveillance is easy.

On the whole, therefore, we think the gentleman of the Wolverhampton and Staffordshire hospital might have rendered the resort to blood-letting unnecessary, had they so chosen.

TENNESSEE STATE BOARD OF HEALTH.—Dr. J. Berrien Lindsley, of Nashville, has been elected to the position of Secretary and Executive Officer of the State Board of Health of Tennessee, which had recently been vacated by the resignation of Dr. C. C. Fite. The position is one involving much labor, directed by a high order of executive ability. The appointment of Dr. Lindsley is an excellent one in all respects.

LITERARY HONORS.—At the recent commencement of the Syracuse University, the honorary degree of LL.D. was conferred by the Faculty and Trustees upon Dr. Nathaniel C. Husted, formerly one of the Vice-Presidents of the American Medical Association and a well-known physician of New York City, etc.

Rutherford College, of North Carolina, has conferred the degree of Doctor of Laws upon Dr. Morris H. Henry, of New York City.

Dr. MacRae of Scotland, recently died suddenly while inhaling chloroform for the purpose of having a tumor removed from his neck by Professor Annandale, of Edinburgh. He was at the middle period of life, and in apparently good health.

SOCIETY PROCEEDINGS.

SOME REMARKS UPON THE TYPE OF TYPHOID FEVER PREVALENT LAST WINTER, WITH PATHOLOGICAL SPECIMENS.

BY GEORGE W. VOGLER, M.D.

Read before the Philadelphia County Medical Society, May 21, 1884.

Mr. President:

The following brief notes may prove of interest to those present this evening.

I desire more particularly to call attention to the unusual prevalence of typhoid fever in our city during the past winter, to the grave type of a majority of the cases, and to the unusually numerous complications.

These notes refer only to the cases that came under my notice during my service at the German Hospital for the months of January, February and March of this year. I might state in passing that what is true of these cases, is also true of those occurring in my private practice.

During the three months twenty-four (24) cases were admitted into the wards, more than half the entire number of cases treated in that institution last year. As three (3) of the above number were brought into the house in a moribund condition, dying immediately or shortly after their admission, the remarks to follow will not appertain to them.

The balance, twenty-one (21) in number, receiving treatment at our hands, may be divided into the following two classes: mitior, 7; gravior, 14; total, 21. Of the gravior died: uncomplicated, 3; complicated, 2; total, 5 deaths.

For a time there were thirteen (13) cases of typhoid fever under treatment at one and the same time.

My resident, Dr. Weed, kindly tabulated twelve (12) of the fourteen (14) cases of the gravior type, and the more *prominent complications* noticed in this list are: peritonitis, meningitis, pneumonia, pleuritis, hydroa, rheumatic arthritis, abscesses, otitis media purulentia, parotiditis, and extreme nervous depression.

TWELVE OF THE FOURTEEN CASES OF THE GRAVIOR TYPE.	Nervous Depression.	Hyperpyrexia.	Hæmorrhage.	Vomiting.	Peritonitis.	Meningitis.	Pneumonia.	Pleuritis.	Hydroa.	Arthritis.	Abscesses.	Otitis Med. P.	Parotiditis.	
Stelig						1								R.
Emery		107°		1	1		1	1			1			R.
Schlipf	1	1	1											D.
Kindsvater					1									R.
Nill										1		1		R.
Bühler							1	1						R.
Meyer	1	1									1	1		R.
Murphy	1	1					1							D.
Stoetz			1	1										D.
Menzell	1								1				1	R.
Holzworth	1	1												D.
Kolb	1	1												D.

R. for recovered; D. for died.

It will be seen that some of these patients were troubled with more than one of these complications at the same time.

There is no doubt in my mind that a majority of the complications enumerated are chiefly attributable to the extraordinary long siege of inclement weather experienced during last winter.

In eight (8) of the gravior type of cases, the temperature ranged between 104 to 108 degrees. The ages ran from 16 to 34 years.

In some cases in which diarrhœa was not controlled by opium and silver, resorcin in doses of three grains acted very kindly, possessing also the

additional advantage of destroying the fœtor of the stools.

In those cases marked by great nervous excitement or actual delirium, and in which opium or bromides seemed of little or no avail, hypodermic injections of ten grains of muriate of quinia acted apparently as a hypnotic. In passing, I would like to state here that, in one instance, the hypodermic use of this remedy produced an abscess that gave us much trouble to heal. Our statistics at the hospital, however, show this to be a rare occurrence, as out of about 250 hypodermic injections of this remedy in various diseases, abscess resulted in but two instances.

An interesting feature noticed was that whenever the catamenia occurred it was invariably attended by an increase of temperature. In one instance, (Emery), where a relapse was supposed to have taken place, the temperature ran from normal up to 103°, and gradually subsided with the cessation of the menses. This phenomenon was noticed to occur twice in this particular case.

Another matter of interest was that two of the female employes of the hospital were stricken down with typhoid fever, barely escaping with their lives. The duty of one of these women was to empty and disinfect the receptacles for the excrement, etc., and to care for the soiled linen from the typhoid fever wards. The other was employed to wash this linen. I certainly would not like to draw the moral in the first instance: "Do not use disinfectants."

Of course, the treatment of the grave and complicated cases was adapted to suit each individual case. In the milder type of the disease, simple common-sense treatment was used, preferably the mineral acids, 5 or 10 drop doses of nitro-muriatic dil., changing to the dil. sulphuric if diarrhœa became troublesome. Where quinia was indicated, I gave it in small but repeated doses, instead of one or more large doses, rarely giving over 7 grains daily. This method has always obtained the most satisfactory results for me.

Dover's powder for sleep, and opium, silver, ergot and resorcin for diarrhœa and hæmorrhage, were used when necessary; also turpentine, when indicated.

A favorite method of giving small doses of turpentine, quinia, and dil. nitro-muriatic acid together, in cases where the symptoms existing demanded the need of all these remedies, was to use a menstruum of syr. ext. glyc. fld. in the proportion of 2 ℥ ext. glyc. fld. to 1 ℥ of syrup, flavored with ol. gaultheriæ. This makes a smooth, pleasant and palatable mixture.

I desire to show the following specimen of perforation of the bowels, the other interesting pathological specimens having been mislaid:

Anna Stötz, æt. 20, domestic, single. Admitted into house January 28, the seventh day of the disease, having had several severe hæmorrhages previous to admission. Some pulmonary complications of an acute nature also present; this rapidly disappeared under proper treatment. On the 30th profuse hæmorrhages occurred, seven or eight during the twenty-four hours.

Treatment: Gallic acid by bowels; opium, ergot and silver by mouth; strychnia hypodermically. By this treatment hæmorrhage was controlled, and fair hopes of recovery were held out.

About the 5th of February hæmorrhage again suddenly came on, which also gave way kindly to treatment. On the morning of the 10th, sudden collapse with intense pain in abdomen, followed rapidly by death.

The post-mortem examination revealed very extensive ulceration and a perforation situated close to the inner border of an ulcer some two inches in diameter, situated within a short distance of the ileo-cœcal valve.

ANNUAL MEETING OF THE UNION MEDICAL SOCIETY OF NORTHERN MICHIGAN.

The annual meeting of the Union Medical Society of Northern Michigan was held at Ionia, April 17, 1884.

There were present at the meeting Drs. Gundrum, H. B. Barnes, Romig, Will. L. Barnes, and Corcoran, of Ionia; McLean, Corey, and Bachman, of Stanton; Bower, Nichols, and Sheldon, of Greenville; Groner, of Big Rapids; Roller, of Edmon; White, of Reed City; Brandt, of Belding; Bailey, of Berlin; Hathaway, of Howard; Smith, of Orleans; and Forsyth, of Lakeview. Four new members were received into the Society.

The following papers and reports of cases were presented: A case of melanosis, by Dr. N. E. Bachman, of Stanton; a case of melanotic sarcoma, occurring at the Big Rapids Hospital, by Dr. F. J. Groner, the surgeon in charge; a case of dropsy of the broad ligament, by Dr. C. S. Sheldon, of Greenville; a case of erysipelas, in which the use of ergot was advocated as a specific in the affection, by Dr. E. O. Smith, of Orleans; a case of pelvic hæmatocele, by Dr. F. J. Groner, of Big Rapids; a paper with the following title, "Was it a Case of Superfœtation?" by Dr. H. L. Bower, of Greenville; a paper by Dr. A. W. Nichols, of Greenville, on "The Relations of the General Practitioner to Insanity." These reports of cases and papers gave rise to spirited and interesting discussions.

The election of officers for the coming year was held, with the following result: President, Dr. D. A. McLean, of Stanton; Vice-Presidents—Dr. S. V. Romig, of Ionia county; Dr. L. A. Roller, of Montcalm county; Dr. F. J. Groner, of Mecosta county; Dr. L. S. Ellis, of Manistee county; Dr. W. H. Aylesworth, of Kent county; Dr. C. H. White, of Osceola county; Treasurer, Dr. N. E. Bachman, of Stanton; Secretary, Dr. C. S. Sheldon, of Greenville; Board of Censors—Dr. F. Gundrum, of Ionia; Dr. L. S. Griswold, of Big Rapids; Dr. A. L. Corey, of Stanton; Dr. J. H. Forsyth, of Lakeview; Dr. C. S. Ford, of Cedar Springs.

The retiring President, Dr. H. B. Barnes, of Ionia, then delivered an earnest and practical address, advocating more thoroughness and a higher standard of medical education.

The following delegates were appointed to attend the next meeting of the American Medical Associa-

tion: Drs. Groner, McLean, H. B. Barnes, Gundrum, and Sheldon.

On motion, the Secretary was instructed to send a synopsis of the proceedings of the Society to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, for publication.

Adjourned to meet at Big Rapids July 17, 1884.

CHARLES S. SHELDON, Secretary.

ROCKY MOUNTAIN MEDICAL ASSOCIATION.

The thirteenth annual meeting of the Rocky Mountain Medical Association was held in the parlor of the Ebbitt House, Washington, D. C., Wednesday evening, May 7th, 1884.

The president, Dr. J. F. Hibberd, of Richmond, Indiana, occupied the chair.

The following members were in attendance: Drs. N. S. Davis, Pollock, Toner, Bartlett, Sutton of Aurora, Sutton of Pittsburgh, Heighway, Long, Parsons, Harding, Hibberd, Mowry, Findley, Cutter, Strong, Holton and Morris. Honorary members: Mrs. Hibberd and Mrs. Morris.

The minutes of the meeting at Cleveland and the Memorial Record were read by the secretary. The only death reported during the year was that of Mrs. Catlin, an honorary member and widow of a former president of the association. The secretary stated that not a single death of an active member had occurred during the year. Of the original list of 123 members, eighty-one survive.

The annual address was then read by Dr. Hibberd the president. It was a valuable and interesting paper and was listened to with marked attention. As it embraced many reminiscenses and striking incidents of the ever memorable journey to San Francisco, a copy was requested for publication. On motion of Dr. Bartlett a vote of thanks was extended to Dr. Hibberd, and the secretary was authorized to have the address printed in pamphlet form for distribution among the members.

A feeling memorial tribute to the memory of Dr. John A. McFarland, prepared by Drs. J. U. Hirckerman, A. B. Hovey and H. B. Gibbon, a Committee of the Tiffin, Ohio, Medical Society, was read and ordered to be placed on the minutes.

Dr. George Sutton, of Aurora, Indiana, was elected president, and Dr. John Morris, of Baltimore, secretary and treasurer for the ensuing year.

The association then adjourned to meet in New Orleans the first Wednesday in May, 1885.

JOHN MORRIS, *Sec'y*.

PROCEEDINGS OF THE NEBRASKA STATE MEDICAL SOCIETY. Fifteenth Annual Session, May, 1883. Plattsmouth, Neb. ROBT. R. LIVINGSTON, Corresponding Secretary.

Contents as follows:

Address of the retiring President, A. H. Sowers, M.D.

1. Report of pistol wound of R. Lung, Diaphragm and Liver, J. Gahan, M.D.
2. Vaccination in America, Horace Chapin, M.D.
3. Cystoid Degeneration of the Kidneys, A. S. v. Mansfelde, M.D.
4. A case of Cystitis, W. O. Henry, M.D.
5. Therapeutic Addenda, A. S. v. Mansfelde, M.D.
6. A case of poisoning by Aconite, A. B. Anderson, M.D.
7. Proper procedure in cases of Obstruction to Labor at Superior Strait, Richard Moore, M.D.

STATE MEDICINE.

NEW ORLEANS QUARANTINE CONFERENCE.

In response to an invitation from Dr. Joseph Holt, President of the Board of Health of the State of Louisiana, a considerable number of representatives from the States of Tennessee, Texas, Louisiana, Mississippi, Alabama, and Florida, attended a Conference in New Orleans, June 2, 3 and 4, 1884.

From advance sheets of the Secretary's report we select the following items of interest:

The following report was made by the committee on the proposition of the necessity of prompt interchange between State and municipal boards of health of information on all subjects relating to public health:

Be it Resolved, That each and every health organization represented in this convention pledge itself to promptly furnish to each other all information in regard to the appearance of cholera or yellow fever or suspicious cases of yellow fever. We recommend that for the purpose indicated in the above resolution, the following groups of symptoms shall be considered to indicate yellow fever and suspicious cases:

I. The following groups of symptoms shall be considered to indicate yellow fever:

Group 1.—A person after a sudden attack has a fever of one paroxysm, attended with marked congestion of blood, stasis of capillaries of surface, conjunctivæ and gums, with a history of probable exposure to infection, and no history of a previous attack of yellow fever.

Group 2.—A person after a sudden attack has a fever of one paroxysm, followed by unusual prostration, albuminous urine, yellowness of conjunctivæ or skin, and having no positively authenticated history of previous attack of yellow fever.

Group 3.—A person has a fever of one paroxysm, albuminous urine, black vomit, suppression of urine, general hæmorrhagic tendency, under circumstances where exposure to the infection is a possibility.

II. *Suspicious cases of yellow fever.*—The following symptoms, associated with a fever of one paroxysm in a patient who has apparently been exposed to infection, and has never had yellow fever, shall be held to justify in either of the six following cases:

1. Suddenness of attack either with violent pain in the head and back, injected eyes and face, or with marked congestion of the superficial capillaries.
2. Want of correlation between pulse and temperature usual to other forms of fever.

3. Albuminous urine.
4. Black vomit.
5. General hæmorrhagic tendency.
6. Yellowness of the skin.

The following cases shall also be deemed suspicious:

7. Any case respecting which reputable and experienced physicians disagree as to whether the disease is or is not yellow fever.

8. Any case respecting which efforts are made to conceal its existence, full history and true nature.

In the event of death of a suspicious case, a post-mortem examination should be made, when practicable. Both before and after death, yellow fever is specially and preëminently characterized by the fact that it is *par excellence* a hæmorrhagic fever, marked by capillary congestion and its sequelæ, hence post-mortem evidence of a general hæmorrhagic tendency in internal organs, especially in the digestive, in preference to the urinary tract, shall be held to confirm the suspicion.

The above were adopted by the New Orleans Medical and Surgical Association and Louisiana State Medical Society.

Respectfully submitted,
GEO. A. KETCHUM, of Alabama,
L. F. SALOMON, of Louisiana,
Committee.

The report was adopted and endorsed as the sense of the Conference.

During the third day's session the Committee on Maritime Quarantine brought in the following report, which was adopted:

"Can an efficient Maritime Quarantine be enforced?"

We can enforce such a quarantine only by devising plans of action such as promise a reasonable, if not a positive assurance of success.

We will understand better the particulars of treatment when we have described the course of a sailing ship through quarantine, no record of sickness on the voyage, a cargo of 30,000 bags of coffee, yellow fever epidemic in Rio, from whence she was cleared. She is brought alongside the wharf at the upper Quarantine Station, where she finds every arrangement for the rapid discharging and reloading of cargo. The crew, with all their effects, are at once taken ashore, where, in a room provided, everything they carry, apparel and baggage, is subjected to powerful disinfection. Their clothing exchanged for other clothing already treated, and this, in turn, disinfected. They are then received at a commodious boarding-house, comfortably prepared for them, there to undergo the prescribed detention. If one should fall ill, he is instantly removed to the hospital, as distant as can be located. In the meantime a full corps of acclimated stevedores are busy engaged in breaking out the cargo and transferring it to the warehouse, already built by the United States Government for that accommodation, there to undergo fumigation. As soon as completely emptied, or at least sufficiently so to permit of thorough cleansing and fumigation, the quarantine tug, a compactly built small vessel, somewhat after the fashion of a fire tug for harbor protection, is run alongside the ship. A hose, attached to a powerful forcing pump aboard the tug, is let through the forward hatchway down into the hold.

In order to flush the bilge quickly, it might be necessary to take up the limber planks, as a better examination could be had and the real condition ascertained. But whether this is done or not, or the ship be in ballast or not, she can be speedily and thoroughly washed. The pump is started and the washing begins, while the ship's pumps are set to discharging the foul bilge-water. This continues until she is washed clean, not only in the timbers and floor of the hold, but the ceiling and every available part. She is now pumped out, the hose removed, and then begins the disinfection and fumigation. Another large hose attached to a powerful exhaust fan is lowered into the same position as the first. The hatches and every other outlet are closely battened, with the exception of a small ventillating hatchway, either at the bow or stern. A quantity of sulphur is put into the furnace connected with the fan and ignited. The exhaust fan is started and sulphurous acid gas in immense volumes and with tremendous force is driven into the timbers and air-strakes, into every crevice and part of that ship until she is completely filled.

In doing this we displace the mephitic and dangerous atmosphere closed in her when she started from Rio.

We have displaced this with not only a non-infected atmosphere, but with one intensely germicidal — one that destroys organic elements in the air, or on exposed surfaces with instant greediness. As for the fumigating agent to be selected, we may use through this apparatus sulphuric acid gas, chlorine, or the nitrous acid fumes, produced by pouring nitric acid upon copper filings. The fumes produced are so powerful that no animalculæ can exist in them for more than two seconds, and the portholes being closed for twelve hours, the process cannot fail to be effective.

After a few hours the hatches are removed and pure air is driven in to facilitate clearing the ship of the fumes. She is reloaded and, with her captain on board, in order not to vitiate the insurance, proceeds at once to the city, there to be discharged only by an acclimated gang. Her export freights must be ready. She is at once reloaded and starts on her voyage. If the term of detention of her crew has not already expired, she touches at Quarantine to take on such as have engaged to reship, and puts to sea, with no more detention than was required to cleanse her, with the utmost expedition, which alone was worth the trouble.

Such a method would soon be adopted at tropical ports, before loading, which would greatly lessen the danger and facilitate our work. To avoid complicating the legal point the Board of Health gives the ship the option of remaining at the station with the crew on board the full term of detention, or leave the crew there. Owners will rather leave the crew, and so contract with them, if necessary, as soon as it becomes known that the regulations of this port will

enable ships to lessen their detention. Under such a system days of detention will be reduced to hours, because ships cleansed, disinfected and fumigated in name would be so in fact. There could be no object in holding such a vessel in quarantine, except to serve as a hotel for the crew, which, under the improved system, would be provided on shore; but at present we all agree on a detention of not less than 10 days.

The above plan is submitted as the only one which, in the opinion of your committee, meets the requirements of a quarantine embodying the highest efficiency in the guarantees against importation of pestilence, while at the same time causing the least possible injury to commerce. The present methods of quarantine are, in the opinion of your committee, too vulnerable for criticism, while inflicting upon commerce the extremest hindrance and operating inconvenience to all. They are not reliable in any of the guarantees against the importation of infection.

We would urge upon the boards here represented the rigid execution of all the methods now in vogue to secure such safety as the present system may possibly afford, but that the boards of health in the several States of the Gulf immediately urge upon their several legislative bodies and upon their people the earliest adoption of an improved system of quarantine, in accordance with the foregoing plan.

As to non-intercourse, we can but express the opinion that such a system of rational, strictly scientific quarantine non-intercourse is never necessary to efficiency in a sanitary point of view, and can only be damaging to commercial interests and violative of every interest of humanity, recognizing the fact that the present system, as pursued at the Gulf ports, does not furnish a reasonable security at all times. Exigencies may arise demanding either absolute non-intercourse, or the nearest approximation that can be attained in the extended detention of 30 or 60 days, which is the equivalent.

GEO. A. KETCHUM, Alabama.
R. W. HARGIS, Florida.
A. P. CHAPLIN, Lower Mississippi.
C. D. RICE, Mississippi.
R. M. SWEARINGEN, Texas.
C. C. FITE, Tennessee.
JOS. HOLT, Louisiana.

The Committee on Interstate Quarantine reported the following:

Resolved, That there should be entire harmony and coöperation between the health authorities of the several States.

Resolvod, Every State should appoint inspectors on all passenger trains from infected places, and on all steamboats or other river craft on which it may be deemed advisable to have inspectors to see that the quarantine rules are enforced in good faith.

Resolved, Every State should have the right to place inspectors of its own at points within the jurisdiction of any other State, and upon railroad trains and river boats within the limits of such jurisdiction. Inspectors coming under this head should be allowed all reasonable facilities for obtaining information and for the transmission of the same; and should comply with the quarantine regulations of the State or locality in which they are acting.

On local or municipal quarantine yellow fever or cholera having been introduced into any community, particularly into any city or town, earnest efforts should be made to confine the disease within the smallest limits—that is to say, to prevent its dissemination through the community. To this end the infected house or locality should be rigorously isolated and disinfection should be employed according to the most approved methods.

JEROME COCHRAN, Alabama.
G. B. THORNTON, Tennessee.
W. E. ANDERSON, Florida.
R. M. SWEARINGEN, Texas.
J. M. TAYLOR, Mississippi.
L. F. SALOMON, Louisiana.

There was great unanimity of feeling displayed throughout the meeting, and, if the Boards intrusted stand together, much will be accomplished.

ILLINOIS STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
SPRINGFIELD, July, 1884.

DEAR SIR:—At the recent meeting of the State Board of Health, held in Springfield, July 2 and 3, 1884, the following resolution was adopted:

Resolved, That while epidemic cholera may be excluded from this country by thoroughly enforced quarantine regulations, yet the best attainable sanitary condition of every locality in the State should be secured, so that in the event of Asiatic cholera effecting an entrance, notwithstanding quarantine, the disease may be met and fought under the most favorable circumstances; and the Secretary is, therefore, hereby authorized to take such action as, in his judgment, will most promptly obtain a thorough sanitary organization of the State, and the adoption and enforcement of the measures necessary to improve its general sanitary condition.

It is entirely possible that we may escape a visitation of Asiatic cholera this year, although there is yet plenty of time for the disease to reach our shores before cold weather. But even if there were no danger from this source, it should be remembered that everything which is done in the direction of sanitary improvement benefits the general health, reduces the amount of sickness, and lessens the death-rate. An obvious duty, therefore, rests at all times, but more urgently at present, upon those charged with the administration of public-health affairs, to take such steps as may be necessary to remedy any defects in the existing sanitary status.

To this end a general inspection of the entire territory under your jurisdiction should be made forthwith; and all nuisances, or other conditions injurious to the public health, which may be disclosed by such inspection, should be promptly abated. Especial attention should be paid to—

FIRST.—*The condition of the water-supply.*
SECOND.—*The disposition of night-soil, garbage and sewage.*
THIRD.—*The cleansing of streets, alleys, and other public places.*
FOURTH.—*The supervision of food-supplies, and of market-places, slaughter-houses and similar establishments.*
FIFTH.—*The general sanitation of every house and its surroundings*

1. Water is one of the commonest mediums through which cholera spreads; but, aside from this, typhoid and malarial fevers, diarrhœa, dysentery and other diseases, are caused by impure and polluted water. Hence the necessity of protecting the supply from contamination by surface-washings and drainage of filthy soil or premises, or of wastes from manufacturing establishments, or by seepage through the ground from privy-vaults, cess-pools, etc.

2. Night-soil, garbage, sewage, and all other forms of decomposing organic matter, are highly prejudicial to health, and their foul odors are indications of danger. The various methods for their proper disposal, so as to render them harmless, are well understood, and should be enforced according to the varying conditions of each locality.

3. Clean streets and alleys, and gutters properly drained and kept free from unsightly and filthy accumulations, are of even greater importance during the heat of summer, than at other times. The healthy condition of the atmosphere of a locality largely depends upon the condition of its thoroughfares.

4. The rapid decomposition of most articles of food during hot weather—the tainting, souring, wilting or rotting processes—and the derangements of the stomach and bowels caused by the use of such food, indicate the necessity for special supervision at this time, of all food-supplies, and of the places where they are prepared, stored, or disposed of.

5. The foundation of healthy living is, obviously, the individual home and its surroundings. Houses, cellars, yards and outbuildings should be carefully inspected, and all accumulations of garbage, refuse and filth of every description should be removed, or, where this is not practicable, they should be rendered harmless by appropriate treatment. No house or premises can be healthy without proper drainage. If this is not secured by sewers or underground drains, then recourse should be had to surface drains, so as to prevent the possibility of stagnant water under the dwelling or in its vicinity. Cellars should be dry, clean and well-ventilated, so that they may not generate foul air to be drawn up through the house.

It is desired that this work of inspection, and remedying of evils and defects, be begun at the earliest practicable moment; and a preliminary report be made to this office, covering in a general way, the existing sanitary condition, and the measures adopted and enforced for its improvement.

In connection with this report, information concerning your public-health provisions is alo desired. I have, therefore, to request the names and addresses of your health commissioner, health officer, members of the board of health, or kindred officials; and copies of your health laws, ordinances, rules and regulations, etc.

With this information from every part of the State, the Board will be able to secure concert of action, and to direct, intelligently and efficiently, whatever measures may be found necessary should, unfortunately, any emergency arise requiring such action.

Forms of health ordinances, adapted to the various organizations of villages, towns and cities in the State, are now being prepared, and copies of the same will be furnished on application.

Confidently anticipating your early attention to this matter, in the interest of your community, I am,

Very respectfully, JOHN H. RAUCH,

Secretary.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, June 11, 1885.

It is difficult to reconcile the arguments lately propounded by M. Pasteur at the Academy of Sciences, and subsequently at the Academy of Medicine, with the facts elicited by the report that was read on the 16th of February last at the Council of Salubrity of the Seine, of which M. Pasteur is a member, on the cases of hydrophobia or rabies that were observed in human subjects in the department during the years 1881, 1882 and 1883. These cases amounted to 33. Of this number, 24 were treated by various methods, and nine were treated by inoculation with the rabie virus, viz.: One by Drs. Dujardin, Beaumetz and Lannelongue, one by Dr. Bouchard, two by persons not named, one by M. Roux, one of M. Pasteur's pupils, this inoculation being consequently practiced in strict conformity with M. Pasteur's mode of proceeding, finally four, or rather five, practiced by M. Pasteur himself. All 33, men, women and children, died, the inoculated as well as the non-inoculated, and in the same lapse of time. And it is after such deplorable results that M. Pasteur lately declared before the academies with some assurance that the first series of experiments that he undertook gave him great hopes that, if a person bitten by a mad-dog were inoculated during the stage of incubation, he would with certainty be protected against the development of the disease, and a fatal issue would thus be averted.

Attempts are from time to time made to rehabilitate the practice of bleeding (here used in a general sense) as a therapeutic agent in the treatment of disease. In France the practice of general or local blood-letting is all but entirely exploded, so much so that the present generation of medical students scarcely know how to use a lancet for the purposes of venesection. Cupping is sometimes employed, but leeches are now so rarely seen that they are almost looked upon as simple curiosities of natural history. Professors Hardy and Peter, of the Paris Faculty, however, still practice blood-letting in most of the cases in which it was formerly resorted to. In Belgium an attempt is being made to revive blood-letting, and Dr. Borlée, in a very able address at the Academy of Medicine of Brussels, lately protested in strong terms against the abandonment of, in his opinion, such a valuable remedy in the treatment of disease, observing at the same time that it was simply due to the impulse of fashion, for after having in former times employed blood-letting to excess, it is now almost considered malpraxis to draw blood from a patient even where it is clearly indicated. This change is said to be justifiable by the teachings of modern experimental physiology and therapeutics, which argument, however, does not hold good in all cases. For instance, Dr. Borlée was struck with the great mortality from pneumonia for some years past, which he is convinced is due to the suppression of blood-letting, and asserted that at the commencement

of his hospital career, every pneumonic patient was treated by the anti-phlogistic method, in which, of course, bleeding is included. The cases of non-success were rare. He did not believe in the change alleged to have taken place in the medical or individual constitutions, and after disserting on the physiological action of blood-letting, which consists in diminishing vascular tension and increasing the activity of the circulation, he advocates its employment in all cases of congestion and inflammation, in which no other method would be of much avail. Dr. Borlée recommends bleeding during the paroxysms of asthma, unattended with cardiac complications, in which cases nothing is more efficacious, and the almost instantaneous relief it affords is always most marked. Plethora, the divers congestions produced by albuminuria of pregnancy, apoplexy, nephritis resulting from scarlet fever and other affections, and hæmorrhages in general are, according to Dr. Borlée, so many definite indications for blood-letting.

Dr. Borlée, I am afraid, will not obtain many proselytes, as the teachings of the modern school tend to a practice almost diametrically opposed to that advocated by him. The Academy of Brussels is so impressed with the advantages of blood-letting, that last year it proposed a prize for the best essay on the subject, but none was forthcoming. This year another appeal is made to the profession, and another prize offered by the Academy for the best essay "On the physiological action of local and general abstraction of blood; its indications and contra-indications in the treatment of disease." The value of the prize is 1,500 francs, and the competition, which I presume is open to all nationalities, as nothing is stated to the contrary, will be closed on the 31st of December, 1885. The conditions laid down are: The memoirs, legibly written in Latin, French, or Flemish, should be addressed, post-paid, to the Secretary of the Academy of Medicine, at Brussels.

Exclusion from competition will be imposed on the following grounds: 1. The memoirs which do not fulfil the conditions above mentioned. 2. Those whose authors will be made known, directly or indirectly. 3. Those which may have been published, either totally or partially, or had been presented to any other learned body. 4. Those that reach the secretary's office after the time fixed. Moreover, the Academy exacts that quotations should be rigorously noted, and the competitors are expected to indicate the editions and pages of the books from which the quotations are borrowed. The memoirs should bear only a motto, which should be copied on a sealed envelope, enclosing the names and addresses of the authors. The envelope attached to the memoir crowned will be opened in public by the President, who will immediately proclaim the name of the author.

Dr. Borlée, at whose instigation the above subject is proposed for competition, is Professor of Clinical Surgery at the University of Liege, but he would not allow this to prevent his proposing what may be considered strictly a medical subject. He thought that the time had arrived when the line of demarcation should no longer exist, as medicine and surgery are not two distinct sciences, but they simply constitute two branches of the same science. The unity of the two branches is discovered in every-day practice, where the therapeutics of the so-called surgical affections are blended with those of medical cases, and vice versa. ALEX. BOGGS.

DOMESTIC CORRESPONDENCE.

FROM WASHINGTON.

MEDICAL MATTERS BEFORE CONGRESS.—The mention made in a previous letter, page 698, of the appropriations recommended in the House of Representatives for the contingent epidemic fund and for the support of the National Board of Health, should have been accompanied by the following:

Mr. Riggs, from the Committee on the Public Health, submitted the following report: [To accompany bill H. R. 2785.]

The Committee on the Public Health, to whom was referred the bill H. R. 2785, have carefully considered the same and the important subjects which it involves, and have the honor to report:

That they do not think it would be wise to confer upon the National Board of Health the broad powers which they would possess if this bill should become a law. We believe it will be best to leave the management of the quarantine and epidemics where it rests now. The Secretary of the Treasury in his last annual report assures us that the present plan has furnished good results, and we are convinced his statement is correct. Yet we are of the opinion the National Board of Health should be preserved, and that it should be provided with reasonable means to pay the expenses of its existence and of such work as properly comes within its sphere.

Therefore your committe recommend that the bill mentioned do not pass.

They further recommend the passage of the accompanying resolution.

June 23, Mr. Moulton, of Illinois, introduced a bill (H. R. 7426) to incorporate the National Eclectic Institute and Sanitarium of the District of Columbia. The bill names twelve individuals, men and women, who are to conduct an institution, the practice of which shall be the scientific use of electricity, combined in cabinet vapor, and medicated baths of magnetism, Swedish movement and nutritive cure, upon the brain, the nerves and the blood. The institution is to embrace a dietetic and hygienic department, designed to invigorate and restore mental and physical exhaustion. The poor will be provided for if the benevolent will contribute enough to pay their expenses; and the institution is to hold and use property, personal or real, sufficient for its full accommodation, convenience and support, which shall be exempt from all taxes and assessments.

Irrespective, of course, of what goes before, I would like to state that the *Medical Times and Gazette* of June 7th has a very interesting editorial headed, "A Hotbed of Quackery," referring to London and the operations there of two prominent

irregulars, one a Count Cesare Nattei, of Bologna, a man of birth and property; he has found two remedies in Italy, by which he can cure all diseases, even cancer; he has cured thousands he says, in different cities, and for many years he has maintained out of his own funds a hospital at Bologna, for the treatment of the poor. He is distinctly a humoral pathologist. There are two main fluids in the body, blood and lymph, and all diseases arise from the perversion of one or both; there are also two main remedies, and if your disease will not yield to "Antilimfatici," it will assuredly succumb to "Anti-Angiotici." His name as the author of the new "electro-homœopathy" is mentioned with sympathetic respect in many an aristocratic home. The other is an ex-lieutenant of the Swedish army, who adopts a modified form of Zander's system, in a large house in one of the best West-end squares of London, and the number of patients who daily submit to these manipulations is described as very considerable. He will knead your head for epilepsy, pummel you for locomotor ataxy, tweak you for paralysis, and in fact manipulate you for any and every disease. He, too, has a plausible theory, and is in a position to appeal with success to the wealthy and so-called educated classes. The *Times* concludes its editorial by consoling practitioners with the assertion that their patients will come back to them after a certain period of trial culminating in disappointment, but thinks that if doctors would never try to make people think that they know much more than they do, but would honestly confess their ignorance when they are puzzled, their patients would have less reason to confound them with irregular practitioners, and less temptation to fly from one to the other. Please excuse this digression if it be so considered, but it seems to be pertinent and suggestive.

We are to have a new medical college. We have only three now, and this will make the much-needed fourth. The other three think there are two too many already. Put them all in one, and the revenue would hardly buy the necessary materials for teaching. This is to be a department of the National University so long talked of, and the medical gentlemen who, by their enterprise, will at least earn the title of professor, are as follows: John T. Winter, M.D., Professor of Materia Medica and Therapeutics, and President of the Faculty; Howard H. Barker, M.D., Professor of Obstetrics and the Diseases of Women and Children, and Dean of the Faculty; Thomas E. McArdle, M.D., Professor of Surgery and member of the Board of regents; Samuel S. Adams, M.D., Professor of the Theory and Practice of Medicine; G. Wyeth Cook, M.D., Professor of Physiology; Middleton F. Cuthbert, M.D., Professor of Chemistry; George Wm. West, M.D., Professor of Anatomy. The first course of lectures will commence October 1 next. This University has already had a law department in operation for some years.

I would like to suggest, Mr. Editor, that you give us your views upon the influence which the new rule adopted by the Association, allowing all medical men of good standing in their respective Societies, by presenting the proper credentials, to become permanent members of the American Medical Association, should have upon the selection of delegates to the same body in the future. It has been common up to this time for men who have proved their efficiency in the past as delegates, and therefore have become thoroughly familiar with the workings of the Association, to stand aside to make room for others to take their places, and become in turn permanent members. Is it not the time now for insisting upon a more stable and permanent organization, by showing the various societies the importance of electing the same delegates, year after year if necessary, when they have shown their active interest in the Association, and ability to fill these places satisfactorily? In other words, to resort to a more careful selection for the future. W. L.

NERVE FUNCTIONS.

On the following postulates we desire the calm and careful consideration of those conversant with the blood supply and microscopic anatomy of the brain, that our interchange of views may be beneficial as well as entertaining to the readers of the JOURNAL.

We hold that there is no such thing as reflex action. That all nerve force is from center to periphery, and that which we term reflex action is but the cognizance of nerve-waste, and that the involuntary motion of avoidance is the result of ganglionic cell supply of same. Constant irritation of the peripheral end of a nerve calls for continued supply, thereby an abnormal determination to its center and finally inflammation, erroneously termed *transferred* irritation. The gray through its oxygen, being the true dynamic matter, is but fuel for future brain waste, and any impediment to its transit through its schwannian structure destroys its use, as is seen in sclerosis, insanity, perverted sensations, neuralgia, as well as in the beneficial results of nerve-stretching and counter-irritation. That it is the seat of any intellectual faculty, is destroyed by the frequent loss or absence of a part or parts which was not even suspected during life, but if viewed as a protein neucleated cell, which by the constant calls of the economy become fissiparously multiplied,elo ngated and enveloped by the white substance of schwann, is carried to its termination to supply nervous sensation or force, would explain its invariable and super-abundant connection with the centers of all nerves of rapid or constant use or action, as thalamus, corpus geniculatum and striatum and pineal body. And to those following the ingenious researches of Gaul in the pleurality of brain functions, a more likely reward in determining the depth to which the pia mater dips into the substance in the centers of Ferrier, than by any convolution or tubercle on the outer table of the skull. Ferrier, in the demonstration of his centers, conclusively proves such pleurality, and if these be viewed as the *infundibular origin* of a special nerve, and the heart (not the pineal body as according to Descartes) as the seat of the soul in man, and knowing its intimate connection through the pneumogastric nerve with the cerebrum, cerebellum, chord and

sympathetic system and find a very plausible center for the *secure* and *ready* manifestation of every psychical impulse. More anon, SIGMA.

NECROLOGY.

COLEMAN, WILLIAM CLARK, M.D., was born in Clarksburg, Indiana Co., Pa., Nov. 29, 1839, and died at the residence of his mother near Livermore, Pa., May 4, 1880. His parents were of Scotch-Irish extraction. He was educated at Elder's Ridge Academy, Pennsylvania, and Saltsburg Academy in the same State. At the outbreak of the civil war his medical studies were unfinished and he preferred the duties of a soldier to those of a subordinate in the medical department. He accordingly enlisted as a private in Company D., Eleventh Regiment, Pennsylvania reserve vols., Aug. 30, 1861, and served in the field throughout the war, taking part in twenty-six battles, including those of Fredericksburg, Gettysburg, the Wilderness, Spottsylvania, Petersburg, Five Forks and Appamattox, C. H., at five of which he was wounded, in the right elbow, in the left arm, in the left hip, and in the chest, respectively. He was early promoted for gallant and meritorious conduct to the rank of First Sergeant, next to that of First Lieutenant, and then to a Captaincy. On several occasions he was the subject of special mention by commanding officers for bravery in battle as well as for efficient service rendered the wounded on the field after battles. At the close of the war he continued his medical studies, attending his first course of lectures at the Jefferson Medical College, followed by a second and third course at the Long Island College Hospital, where he graduated June 28, 1868. He was married May 18, 1869, to Isabella J. Richey, of Livermore, Pa., who died June 6, 1876. The result of this marriage was two children, a daughter and son, the latter dying a few months prior to his father. He located first at Livermore, Pa., but removed after a short time to Latrobe, Pa., where he continued to reside.

Dr. Coleman was a member of the Westmoreland County (Pa.) Medical Society, having been its President in 1874. He was also a member of the Medical Society of the State of Pennsylvania, and of the American Medical Association. He made a study of hygiene, on the chief points of which he lectured extensively and acceptably before audiences more or less popular. In 1872 he delivered a complete course of lectures on physiology before the students of the Blairsville Academy, and afterwards to the students of the Blairsville Female Seminary. He contributed articles on various subjects to the medical journals and transactions of the State Society. On the 11th of August, 1871, he was commissioned Lieutenant-Colonel and Surgeon-in-Chief of the National Guards of Pennsylvania, Eighth Division, and recommissioned August 1, 1876. He was present at the Centennial Encampment throughout, and participated in the public demonstration of the Pennsylvania military in Philadelphia, Aug. 10, 1876. During the railroad riots of 1877 he was one of the leading surgeons in camp at Pittsburgh. Early in life he embraced the faith of the Presbyterian church, of which he continued a consistent member.

An indomitable will and ambition constantly evinced themselves during both his military and professional career. Dr. Coleman enjoyed an extensive practice and was respected and beloved by all who knew him. I. P. KLINGENSMITH, M.D.

Blairsville, Pa.

TUCKER, GEORGE GREENVILLE, M.D., born at Warren, Mass., in 1834, died at his residence in Westfield, Mass., August 19, 1883, of heart disease. His parents removed to Cambridge, Mass., during his childhood, where his father died, leaving the subject of this sketch at the age of twelve years dependent upon his own resources to obtain an education. He determined early in life to enter the medical profession, and at the age of seventeen entered the Massachusetts General Hospital as house officer, remaining three years, pursuing at the same time his medical studies in the Tremont and Harvard Medical Schools, graduating at the latter institution with distinction at the age of 20 years. Desiring more extended study and greater advantages before entering upon his professional career, at great personal sacrifice, he went abroad, spending some time in Paris. While in Europe he arranged to go on the medical staff of the Russian Army fighting in the Crimea; but peace came and he returned to America. He opened an office in Boston, where he remained a year, when a more favorable opening induced him to remove to Westfield, Mass., where he spent the remaining 27 years of his life in active practice, being wholly absorbed in his profession, caring for no other distinction than to be a skilful practitioner of medicine, consequently he was eminently successful both as a physician and surgeon. During the civil war he was obliged by circumstances to remain at home; but besides sending a substitute he gave public notice that he would attend the families of soldiers in town free of expense to them during the war, which duty he faithfully performed for four years. In 1873, his health being seriously impaired, he went abroad with his wife and little boy, remaining 15 months, spending one winter in Berlin. On returning home improved in health, he entered again with enthusiasm upon his beloved work, soon acquiring a large practice, which he handled till the day of his death, though suffering severely at times from neuralgia during the last years of his life. Dr. Tucker enjoyed the confidence and esteem of his professional brethren, and his social qualities made him many warm personal friends among his fellow-citizens. He married Miss Langdon, grand-daughter of the late Abner Past, of Westfield, Mass. He was an honored member of the Congregational Church, of the Massachusetts Medical Society, and of the American Medical Association.

JOHN H. GILMAN, M.D.

Lowell, Mass., July 9, 1884.

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OFFICIAL LIST OF CHANGES OF STATIONS, AND DUTIES OF MEDICAL OFFICERS, OF THE UNITED STATES MARINE HOSPITAL SERVICE, APRIL 1 TO JUNE 30, 1884.

Bailhache, P. H., Surgeon, detailed as Chairman of Board to examine candidate for appointment into the Revenue Marine service, May 17, 1884.

Vansant, John, Surgeon, to proceed to Empire City, Oreg., as inspector, April 2, 1884.

Hutton, W. H. H., Surgeon, granted leave of absence for twenty-five days, May 14, and June 9, 1884.

Miller, T. W., Surgeon, granted leave of absence to attend the meeting of the American Medical Association, May 1, 1884; to proceed to Pittsburgh, Pa., Ashtabula, Ohio, Buffalo, N. Y., and Detroit, Mich., as inspector, May 10, 1884.

Wyman, Walter, Surgeon, detailed to represent the Marine Hospital Service as delegate to the American Medical Association, April 17, 1884; detailed as member of Commission to inspect United States buildings at quarantine station, on the Delaware river, June 16, 1884.

Austin, H. W, Surgeon, granted leave of absence to attend the meeting of the American Medical Association, May 2, 1884.

Gassaway, J. M., Surgeon, when relieved by P. A. Surgeon Mead, to proceed to Portland, Maine, and assume charge of the service, April 16, 1884; granted leave of absence for thirty days, May 28, 1884.

Stoner, G. W., Passed Assistant Surgeon, when relieved by Surgeon Gassaway to proceed to Cairo, Ill., and assume charge of the service, April 16, 1884; when relieved by Surgeon Gassaway to report in person to the Surgeon General, June 20, 1884.

Irwin, Fairfax, Passed Assistant Surgeon, granted leave of absence for twenty-one days, June 19, 1884.

Mead, F. W., Passed Assistant Surgeon, when relieved by Assistant Surgeon Devan to proceed to Philadelphia, Pa., and assume charge of the service, April 16, 1884; detailed as recorder of Board for physical examination of candidates for appointment as cadets in the Revenue Marine Service, May 20, 1884.

Carter, H. R, Passed Assistant Surgeon, to inspect unserviceable property at the San Francisco Hospital, May 24, 1884.

Wheeler, W. A, Passed Assistant Surgeon, to inspect unserviceable property at the Chicago Hospital, May 24, 1884.

Benson, J. A., Passed Assistant Surgeon, granted leave of absence for thirty days, April 14, 1884; when relieved by P. A. Surgeon Stoner to report to him for temporary duty, May 19, 1884.

Banks, C. E., Passed Assistant Surgeon, detailed as member of Board to examine physically candidates for appointment into the Revenue Marine Service, May 17, 1884; to inspect unserviceable property at Baltimore, Md., New York, N. Y., and Boston, Mass., May 26 and June 2, 1884.

Bennett, P. H., Assistant Surgeon, granted leave of absence for twenty days, June 28, 1884.

Devan, S. C., Assistant Surgeon, to proceed to Port Townsend, W. T., relieve P. A. Surgeon Mead, and assume charge of the service, April 14, 1884.

Urquhart, F. M., Assistant Surgeon, granted leave of absence for thirty days, May 22, 1884.

Yemans, H. W., Assistant Surgeon, to report to Capt. M. A. Healey for duty as Medical Officer during cruise of revenue cutter "Corwin," April 16, 1884.

Glennan, A. H., Assistant Surgeon, to proceed to Mobile, Ala., for temporary duty during sickness of P. A. Surgeon Goldsborough, June 17, 1884.

APPOINTMENT.

Brooks, Stephen D., M.D., of Massachusetts, having passed the examination required by the regulations, was appointed an Assistant Surgeon by the Secretary of the Treasury, May 15, 1884. (Dr. Brooks had previously served as an Acting Assistant Surgeon from March, 1883, to May, 1884.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM JULY 4, 1884, TO JULY 11, 1884.

Promotion to date from July 2, 1884. Glover Perin, to be Assistant Surgeon-General with rank of Colonel, Andrew K. Smith to be Surgeon with rank of Lieutenant-Colonel, Passmore Middleton to be Surgeon with rank of Major.

PROMOTIONS.

To be Assistant-Surgeon with the rank of Captain, after five years' service, in accordance with the act of Congress of June 23, 1874:

Assistant-Surgeon,	John J. Kane,	June 3, 1884.	
" "	John M. Banister,	"	"
" "	Aaron H. Appel,	"	"
" "	Charles Richard,	"	"
" "	W. Fitzhugh Carter,	"	"

Birmingham, H. P., First Lieutenant and Assistant-Surgeon, from Fort Bayard, N. M., to Fort Bliss, Texas. (Par. 3, S. O. 137, Hdqrs. Dept. of Missouri, July 3, 1884.

LIST OF OFFICIAL CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JULY 12, 1884.

P. A. Surgeon G. P. Lumsden, ordered to U. S. Steamer "Wyandotte," and placed on waiting orders.

P. A. Surgeon R. C. Persons detached from "Wyandotte," and placed on waiting orders.

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